Environmental Assessment

Juneau Compost Facility

Prepared by:

U.S. EPA Region 10 for Congressional Directed Spending to the City and Borough of Juneau, Alaska

November 2023

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1.0 Introduction

This environmental assessment (EA) documents the potential environmental effects of the proposed Juneau Compost Facility. The EA was prepared in compliance with the National Environmental Policy Act (NEPA), CEQ regulations for implementing NEPA (40 CFR 1500-1508), and EPA's NEPA procedures for implementing NEPA under 40 CFR part 6.

1.1 Background

The Consolidated Appropriations Act, 2023 (P.L. 117-328) included $2,500,000 earmarked for the City and Borough of Juneau, Alaska, for the municipal composting facility. EPA Region 10 will administer and manage this Congressionally directed spending grant to the City and Borough of Juneau (CBJ). The CBJ will be responsible for the contracts and all project components related to the municipal composting facility.

The CBJ is Alaska's Capital City, in the heart of Southeast Alaska. As of the 2020 census, the CBJ had a population of around 32,255, making it the third most populous city in Alaska, after Anchorage and Fairbanks. There are no roads connecting the city to the rest of the state or North America due to the extremely rugged mountain terrain surrounding the city. Primary access to the city is by air and sea. Due to the rugged terrain, buildable land is incredibly hard to come by in Juneau.

The Juneau Compost Facility will be located at the site of the former Lemon Creek Gravel Pit at 2300 Anka Street. The site is a mined-out gravel pit that is currently being used for recycled asphalt pavement (RAP) and snow storage. The site will be converted for use as a Zero Waste Subdivision (ZWS) for the community of Juneau, which will include other aspects of Juneau's waste diversion and recovery, and could include a recycling center, a transfer station, household hazardous waste center, a reuse center, and a repair and training area. At this time, the ZWS project will span over several years to complete and will be contingent on available funding. The Congressionally directed spending funds will be used to initiate the planning phases for the ZWS concurrently with the compost facility.

The former gravel pit consists of approximately 25 acres. Around two to five acres will be used for the compost facility. The other acreage will eventually be used for other solid waste management purposes within the next one to ten years as part of the ZWS project. As a former gravel pit, the site has undergone earth moving disturbance in its several decades of operations. Most vegetation in the project area is bare, except for a variety of native "volunteer" species that have grown in the area after the gravel operations ceased.

The project area is shown in Appendix A.

1.2 Purpose and Need

The Juneau Compost Facility will provide increased capacity and capability for solid waste management. CBJ does not own or operate the sole landfill in Juneau, nor does it hold the public utility for waste hauling. WM, the landfill's owner, and the Alaska Department of Environmental Conservation (ADEC), estimates that Juneau's landfill only has about 20 years left in its lifespan. WM has no plans to build a new landfill, and expansion of the current landfill is incredibly difficult due to the proximity of wetlands. Buildable land is also incredibly hard to come by in Juneau. Once this landfill closes, options will include shipping all of its waste to the contiguous United States, building a new landfill, or thermal treatment – all options that come at great cost to the community.

Waste diversion and reduction. With Juneau's only landfill having a life of 20 years left, the community has limited choices for landfill expansion or the placement of a new landfill. The former gravel pit is currently owned by the CBJ and is zoned for industrial use. By constructing a composting facility within the footprint of the former gravel pit, the community will have an option to divert up to 22% of the annual waste stream to the landfill and convert the organic waste material into a usable finished compost. There is demand locally as well as regionally for this finished product. By keeping food waste and other organics out of the landfill, CBJ can significantly extend the life of the landfill.

1.3 Public Involvement

All supporting documents, along with this environmental assessment, are available for review through the EPA NEPA Compliance Documents website at https://cdxapps.epa.gov/cdx-enepa-II/public/action/nepa/search.

This EA and EPA's preliminary Finding of No Significant Impact (FONSI) are available for review and comment. Comments supporting or disagreeing with EPA's preliminary decision may be submitted to EPA for consideration. All comments must be received within 30 calendar days of the date of the preliminary FONSI. Please address your comments to:

> Domenic Calabro,
> U.S. EPA Region 10
> Pollution Prevention & Communities Branch
> Email: calabro.domenic@epa.gov

No administrative action will be taken by EPA on this action for at least 30 calendar days of the date of the preliminary FONSI.

Public feedback overall has been positive for the project. There is a lot of public awareness in the community around the limited lifespan of the Juneau landfill, as well as the consequences of climate change. The public has been very excited about the possibility of expanded composting services. There are a lot of gardeners, and some local and regional farmers, that have expressed a desire for more locally produced compost as soil amendments. Additionally, rates at the landfill have increased and will most likely increase again in the next few years, so there is a community pressure to have more avenues for sustainable waste management practices.

The CBJ reported the only concern that has been raised about this project is over competition against a local, privately-owned and operated compost facility in town (Juneau Composts!). These concerns have been expressed largely by the owner of Juneau Composts! that the municipal compost facility was going to put her out of business. The CBJ intends to contract out the operation of the municipal compost facility to the private sector. CBJ already does this with its recycling and its household hazardous waste center. Juneau's Assembly have directed CBJ staff to work with the business owner of Juneau Composts! to ensure that this project complements the existing compost program within the community. CBJ will perform a waste characterization study in the late spring of 2024, which will provide a better understanding of the wastes entering the landfill, but based on available data the current diversion rate for all organic wastes by commercial and non-commercial composting (backyard) is estimated to be under 5%.

If Juneau Composts! does not win the operations contract for the municipal compost facility, the CBJ believes there is enough organic waste for both Juneau Composts! and the municipal facility to operate well and have enough space in the marketplace for growth for Juneau Composts! in the future.

Additionally, Juneau Composts! leases property from CBJ for its operations. Since Juneau Composts! does not own the property, securing funding for site improvements has been difficult. Across the country, grassroots composting operations have had difficulty with scaling up due to the large up-front costs associated with composting. The CBJ has partnered with Juneau Composts! and other area non-profits and has applied for the FY 2023 USDA Composting and Food Waste Reduction cooperative agreement program. This would provide equipment and site improvements for Juneau Composts! in order to help them increase their capacity at their current site. CBJ staff believes this will help this business grow, in addition to continuing to build food waste diversion momentum in the community for when the municipal facility is completed.

2.0 Alternatives

This section describes the alternatives considered for the compost facility.

EPA has evaluated the following alternatives as part of its grant action:

- Proposed Action: Award the grant for the Juneau Compost Facility.
- No Action: Not award the grant for the Juneau Compost Facility.

2.1 Alternative 1 – The Proposed Action

Under the Proposed Action, the CBJ would construct the Juneau Compost Facility at the former Lemon Creek Gravel Pit. The former gravel pit sits on approximately a 25-acre parcel of land at Anka Street in Juneau. The footprint for the compost facility will encompass approximately two to five acres. Proposed construction activities include grading, paving, and installation of utilities, including electricity, water, and sewer. Buildings, such as an office for a facility attendant and shelter structures for composting windrows may be constructed depending on final design.

This site, as a former gravel pit, has undergone a lot of earth moving in its several decades of operations. Access roads already exist to and within this site. The site is currently being used as a storage and staging area for RAP and snow removal. As part of the grading activities for the compost facility, there will be minimal vegetation and overburden removal required as the site is mostly bare and consists of gravel and sand. Trenching and borrow areas may be needed in the grading of the site. Stormwater controls will also be installed.

In addition, the CBJ will use the Congressionally directed spending to plan for the larger ZWS project for its future solid waste management activities at the former gravel pit site proposed within the next one to ten years. This will assist in increasing the capacity and capability of CBJ to process both municipal waste and recycling. The plans for the ZWS waste diversion and recovery project could include a recycling center, a transfer station, household hazardous waste center, a reuse center, and a repair and training area.

The proposed action addresses the need for waste diversion and reduction at Juneau's only landfill, thereby extending the landfill's lifespan and providing for the basic health and sanitation needs of the community.

2.2 Alternative 2 – No Action

The No-Action Alternative consists of not awarding the Congressionally directed spending for the composting facility. In this case, the No Action Alternative does not meet the purpose and need for waste reduction and waste diversion from the current landfill. The landfill will continue filling at the current rate and will close in 20 years. Food waste diversion will stagnate at around five percent of total food waste stream. The local compost company will continue to compost. However, it is difficult for the company to expand services due to limited available land and lack of financial resources to invest in capital infrastructure for expansion, which can be very costly.

If the life of the only landfill in Juneau is not extended, it will eventually have to close. Once this landfill closes, the CBJ will most likely begin shipping waste to the contiguous United States at great cost. However, residents would still need to dispose of solid waste and other material. If the CBJ made it too hard to dispose of items, the CBJ would see an increased rate of non-compliance, for example, dumping

of items along its roadways. The residents would no longer have the convenience of disposing of items in the city they live in. Therefore, EPA has determined that the No Action Alternative is not a feasible alternative.

3.0 Affected Environment and Environmental Consequences

This section summarizes the physical, biological, social and economic environments of the affected project area and the potential changes to those environments due to implementation of the Proposed Action. Identification and description of any mitigation measures considered, including any mitigation measures that must be adopted to ensure the action will not have significant impacts are provided under each resource area, as applicable.

3.1 Resources Eliminated from Detailed Consideration

Several resources were not evaluated in this EA because it was determined that implementation of the proposed action is unlikely to have any impacts to these areas of concern. These resources include Land Use, Cultural Resources and Historic Properties, Socioeconomics and Environmental Justice, Transportation and Traffic, and Utilities and Community Services. A brief explanation of the reasons why each resource has been eliminated from further consideration in this EA is provided below.

Land Use. Land use is the term used to describe the human use of land. General land use patterns characterize the types of uses within a particular area and can include agricultural, residential, commercial, industrial, scenic, natural, and recreational. Land ownership is a categorization of land according to type of owner. There can be various owners of land in the U.S. including, federal, tribal, state, or local governments, private organizations or individuals. The Juneau Compost Facility will be located at the site of the former Lemon Creek Gravel Pit. This site is currently owned by the CBJ and is zoned for industrial use. The CBJ currently uses this site to store RAP for city projects and snow in the winter from plowing. The CBJ intends to maintain the industrial use of this site going forward.

Directly to the west of the proposed site are several retail businesses, including Home Depot, Costco, O'Reilly Auto Parts, a furniture store, and a car wash. Also in the area is a mid-sized brewery, a car dealership, and several construction-related businesses. To the north of the site is the Lemon Creek Correctional Center, operated by the State of Alaska, a vehicle impoundment lot, as well as the location of Juneau Composts!. The project is compatible with adjacent uses and will not alter land use patterns, or preclude other land uses within the project footprints and land uses adjacent to the project. Therefore, this resource was eliminated from further analysis.

Cultural Resources and Historic Properties. Historic properties include any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP) maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria. The National Historic Preservation Act (NHPA) embodies a long-standing national policy to preserve historic sites, buildings, structures, districts and objects of national, state, tribal, local, and regional significance and, among other things, to protect such historic properties from adverse impacts caused by activities undertaken or funded by federal agencies. The fundamental responsibilities of federal agencies are expressed in Section 106 of the Act is to take into account the effect of any undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register prior to approval of the expenditure.

The former gravel pit is previously disturbed land. It has been extensively mined and excavated over decades of operation with no known archeological findings during that period. Based on this, EPA

determined that the project does not have the potential to cause effects to archaeological or architectural resources. The project does not have the potential to cause affects to resources listed in or eligible for listing in the National Register of Historic Places. There are no historic properties or structures on the project site or nearby. The proposed construction activities will be contained within the footprint of the previously developed/disturbed area of the former gravel pit site lowering the potential for encountering previously unidentified cultural resources. Should any unidentified archaeological, cultural, or paleontological resources be discovered as a result of construction activity, EPA will require that work that would disturb such resources must be stopped, and the Alaska State Historic Preservation Officer will be notified immediately. Since the project has no potential to cause affects to historic properties or cultural resources on or near it, this resource was eliminated from further analysis.

Socioeconomics and Environmental Justice. There are populations that are subject to environmental justice considerations located within or near the location of the proposed action. In the Lemon Creek valley, minorities comprise 49 percent of the population and is home to a number of densely populated neighborhoods of lower-income multi-family homes and assisted living facilities. This area is also home to several industrial operations, such as Alaskan Brewing Company, a metal scrapyard and recycling operation, an asphalt batch plant, a concrete batch plant, sand and gravel producers, Alaska Electric Light & Power, and an existing composting business. Juneau's sole landfill is situated in the Lemon Creek valley. Odor problems from the landfill disproportionately affect the adjacent Lemon Creek area. By diverting organic waste from the landfill and composting it in a properly designed and operated compost facility, there is potential to significantly reduce odor issues and improve environmental justice concerns within these neighborhoods. The proposed site for the municipal composting facility is an existing gravel pit, industrially zoned, and more than twice as far away from households than the landfill. The project could result in temporary increased noise and emissions during the construction period. Dust from construction is unlikely due to the extremely wet climate. The nearest residential areas are separated by terrain and by industrial land uses. Construction related impacts are not expected to impact nearby communities. Based on this, implementation of the project will not have disproportionate or adverse impact to populations with environmental justice concerns.

In addition, there would be no significant increase in the number of employees as a result of this project. It is anticipated that the grading, asphalt paving, and cement work would be performed by contractors from the regional work force in the area. Because these are temporary jobs that would be filled by existing regional work force, there would be no effect on area population or increase in the demand for housing or public services in the region. Therefore, the proposed action would have a negligible effect on the socioeconomic character of the surrounding communities and this resource was eliminated from further analysis.

Transportation and Traffic. The construction of this project will not involve rerouting or controlling traffic. Traffic-generating construction activities include trucks hauling equipment and materials to the construction site. Construction equipment used for the work will likely include concrete trucks, loader, grader, and paving equipment. Physical roadway restrictions entering and exiting the former gravel pit site may have the potential to slow traffic at times at the site. However, impacts are temporary and will cease at the end of construction. Once construction activities have been completed, traffic levels and flow at the site will return to original levels. Because there will be no anticipated impacts to transportation and traffic, this resource was eliminated from further analysis.

Utilities and Community Services. The compost facility and ZWS will require new roads and utilities (stormwater, sewer, water, power, phone, cable, etc.) to be constructed at the former gravel pit site. Roads and utilities will extend from the ends of existing roads adjacent to the site. There are no anticipated interruptions in service to residents in the CBJ area during construction. The proposed action will not impact community services and underlying utilities in the CBJ. The project will not cause an increase in residents' monthly service rates. The proposed action will not impact recreational and park resources. As the construction of the municipal compost facility will not have an impact to utilities and community services, this resource was eliminated from further analysis.

3.2 Air Quality and Resources

In accordance with the Federal requirements of the Clean Air Act (42 U.S.C. §§ 7401-7671q), the air quality in a specific region or area is measured by the concentration of various pollutants in the atmosphere. The air quality in a region is a result not only of the types and quantities of atmospheric pollutants and pollutant sources in an area, but also surface topography, the size of the topological "air basin," and the prevailing meteorological conditions.

National Ambient Air Quality Standards. The Clean Air Act is the primary Federal law designed to protect human health and the environment from the effects of air pollution. The law is administered by EPA, in coordination with State, local, and Tribal governments. To protect public health and public welfare and to regulate emissions of hazardous air pollutants, the Clean Air Act requires EPA to establish National Ambient Air Quality Standards (NAAQS) for six "criteria pollutants" that threaten human health and welfare: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter ($PM_{2.5}$ and PM_{10}), and lead (Pb).

Primary NAAQS are ambient air quality standards that are required to protect public health with an adequate margin of safety, including protecting the health of sensitive populations such as asthmatics, children, and the elderly. Secondary NAAQS specify levels of air quality that are required to protect public welfare, including vegetation, crops, wildlife, economic values, and visibility. Primary and secondary NAAQS are currently established for six criteria air pollutants: O_3, CO, NO_2, SO_2, $PM_{2.5}$ and PM_{10}, and Pb. The NAAQS established various standards for each pollutant with varying averaging times. Standards with short averaging times (e.g., 1-hour, 8-hour, and 24-hour) were developed to prevent the acute health effects from short-term exposure at high concentrations. Longer averaging periods (e.g., 3 months or annual) are intended to prevent chronic health effects from long-term exposure. The Clean Air Act requires States to designate any area that does not meet the national primary or secondary NAAQS for a criteria pollutant as a "nonattainment area." Congressionally directed spending for solid waste projects can be located in both attainment and non-attainment areas.

Hazardous Air Pollutants. In 1990, the Clean Air Act was amended to include the regulation of 187 hazardous air pollutants (HAPs) that were associated with cancer or other serious health effects. As with the NAAQS, HAPs originate from fixed sources (e.g., power plants, manufacturing facilities), mobile sources (e.g., cars, trucks, buses, construction vehicles), or indoor sources (e.g., building materials and cleaning processes). HAPs are federally regulated under the Clean Air Act via the National Emission Standards for Hazardous Air Pollutants (NESHAPs). EPA developed the NESHAPs for sources and source categories emitting HAPs that pose a risk to human health. EPA regulates emissions of listed HAPs using source categories that must meet maximum achievable control technology (MACT) standards to demonstrate compliance.

General Conformity. According to EPA's General Conformity Rule, any proposed federal action that has the potential to cause violations in a NAAQS nonattainment or maintenance area must undergo a conformity analysis. If net annual emissions from a proposed project remain below applicable local thresholds for Conformity, a Clean Air Act Conformity Determination is not required. If a Clean Air Act Conformity Determination is required, a Record of Non-Applicability (RONA) must be prepared. If management action or project emissions of one or more of the criteria pollutants were to exceed applicable local thresholds for Conformity, a Clean Air Act Conformity Determination is required to determine if emissions conform to the approved State Implementation Plan (SIP).

Class I Areas. Certain national park and wilderness areas across the country are given special protection under the Clean Air Act, known as "Class I" areas, some of which have the potential to be in the vicinity of Congressionally directed spending projects.

Greenhouse Gases. Greenhouse gases (GHGs) are chemical compounds in the Earth's atmosphere that allow incoming short-wave solar radiation but absorb long-wave infrared radiation re-emitted from the Earth's surface, trapping heat in the atmosphere. Gases exhibiting greenhouse properties come from both natural and human sources. Water vapor, carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) are examples of GHGs that have both natural and manmade sources, while other GHGs such as chlorofluorocarbons are exclusively manmade. In the U.S., most GHG emissions are attributed to energy use. Such emissions result from combustion of fossil fuels used for electricity generation, transportation, industry, heating, and other needs. The principal GHGs that enter the atmosphere due to human activities are carbon dioxide, methane, nitrous oxide, and fluorinated gases.

An evaluation of air quality impacts involves a comparison of proposed activities to the existing air quality. Adverse air quality impacts will occur if an alternative increases ambient air pollution concentrations above any NAAQS; contributes to an existing violation of any NAAQS; interferes with or delays timely attainment of NAAQS; is a major source of HAPs; impairs visibility within any federally-mandated Class I area; triggers a conformity determination; and, significantly increases GHG emissions.

3.2.1 No Action Alternative

Under the No Action Alternative, facility emissions, traffic volumes, and air quality will continue at current levels. No localized or regional changes to air quality are expected.

3.2.2 Proposed Action

The construction of the municipal compost facility will involve site preparation and clearing, excavation, and construction. Disturbance of land may generate dust and particulate matter (PM) (including $PM_{2.5}$, PM_{10}) primarily from "fugitive" sources (i.e., emissions released through means other than through a stack or tailpipe) and lesser amounts of criteria air pollutants primarily from operation of heavy equipment construction machinery (mostly diesel operated). PM_{10} and $PM_{2.5}$ emissions from construction can vary greatly from day to day depending on the level of activity, the equipment being operated, silt content of the soil, and the prevailing weather. Larger-diameter dust particles (i.e., greater than 30 microns) generally fall out of the atmosphere within several hundred feet of construction sites and represent more of a soiling nuisance than a health hazard. Smaller-diameter particles (e.g., PM_{10} and $PM_{2.5}$) are associated with adverse health effects and generally remain airborne until removed from the atmosphere by moisture. However, dust is not a concern despite the amount of earth being moved as Juneau is in a rainforest and the ground is rarely dry enough to produce it.

The municipal compost facility is not located in a maintenance or non-attainment area for any priority air pollutant. There will be minimal effect on air quality during construction. Construction equipment used for the work will likely include concrete trucks, loader, grader, and paving equipment. All construction equipment will have appropriate emission controls. Congressionally directed spending grant recipients shall implement appropriate best management practices to reduce construction impacts, such as reducing vehicle speeds, anti-idling requirements, etc., as appropriate. Overall, air quality impacts during construction will be localized and generally short-term but less than significant with the implementation of best management practices.

The table below provides the estimated greenhouse gas (GHG) emissions savings from increased diversion of approximately 1,500 tons of organic material per year from the landfill in the community of Juneau. In the event that the community begins to ship its municipal solid waste south to Washington state, diverting organic wastes will provide even greater emissions savings.

Emissions calculations performed with EPA WARM v.15.1

Scenario	Total Organic Waste*	Weight Composted (tons)	GHG emissions ($MTCO_2E$)
2022 Diversion	12,731	250	6,541.46
2026 Diversion Goal		1,500	5,738.95
GHG Emissions Savings in Metric tons of carbon dioxide equivalent ($MTCO_2E$)			**802.52**

**Estimate of total available organic material from the 2016 Cedar Grove Compost Facility Assessment*

There are no stationary source air emitters in the project area. The CBJ is not in a Class I protected Area. Overall, the construction of the compost facility's effect on air quality during construction is expected to be minor and short-term and will result in no significant impacts to air quality. Cumulative impacts to air quality in the CBJ is expected to be low, since no reasonably foreseeable project would have considerable air quality impacts and air quality in the CBJ is good.

3.3 Noise and Vibration

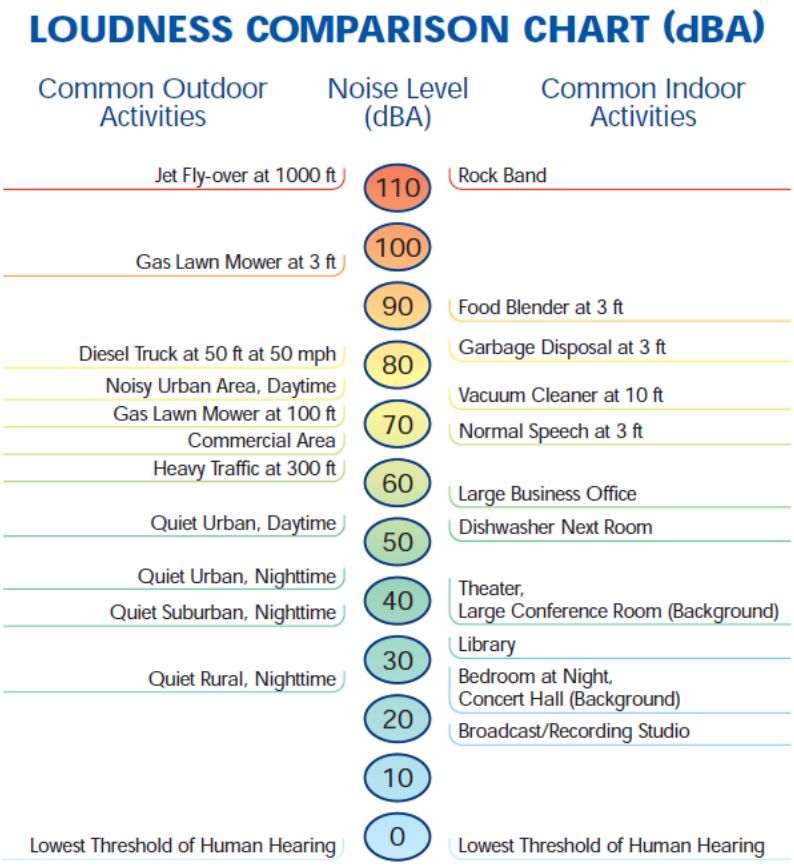
Sound is a physical phenomenon consisting of vibrations that travel through a medium, such as air, and are sensed by the human ear. Ground-borne vibration is the oscillatory motion of the ground about an equilibrium position that can be described in terms of displacement, velocity or acceleration. Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise intrusive. Noise might also impact wildlife species and their activities, especially those that rely on vocalizations for communications. Human and wildlife response to noise varies depending on the type and characteristics of the noise, distance between the noise source and the receptor, receptor sensitivity, and time of day. Although exposure to high noise levels has been demonstrated to cause hearing loss, the principal human responses to environmental noise and vibration are annoyance and stress. Sensitive receptors include, but are not limited to, hospitals, schools, daycare facilities, elderly housing and convalescent facilities. Ground-borne vibration is also evaluated for its potential to cause structural damage to buildings.

State and local governments have primary responsibility for controlling the use of noise and vibration sources and regulating outdoor noise levels in the environment. Many local governments have enacted noise ordinances to manage community noise levels. The noise limits specified in such ordinances are

typically applied to define noise sources and specify a maximum permissible noise level. State and local regulations will likely govern noise levels for normal, day-to-day construction activities and operations.

Sources and levels of noise shown in Figure 3-3 are representative of cities and towns across the nation. Existing sources of noise that can be heard around sites include road traffic, rail traffic, aircraft overflights, construction equipment, air cooling and heating systems, back-up generators, manufacturing, home activities and natural sounds such as bird vocalizations, running water, and wind. On a daily basis, urban areas are more likely to exhibit higher noise levels resulting from highway traffic (70 to 90 A-weighted decibels (dBA)), construction noise (90 to 120 dBA), and outdoor conversations (e.g., small/large groups of people) (60 to 90 dBA). Figure 3-3 compares noise levels for common outdoor and indoor activities.

Figure 3-3. **Loudness Comparison Chart**



3.3.1 No Action Alternative

Under the No Action Alternative noise levels will continue at current levels. No localized or regional changes to noise are expected.

3.3.2 Proposed Action

Project construction will generate noise as a result of grading and paving operations. Typical construction noises are created from engine-powered construction equipment such as dump trucks, excavators, concrete mixers, and flatbed trucks. Construction noise is generally loud enough to cause

annoyance within 800 feet from the construction site. Noise generated by this project during the brief construction phase would be minimal. Implementing the proposed action would be expected to result in no significant impacts; however, a minor short-term increase (i.e., minor negative impact) in noise could be expected throughout the duration of the construction activities. Conditions would be expected to return to normal once activities were completed. The temporary impacts would be the result of heavy equipment operation. The construction activities would occur during daytime hours and on weekdays when occasional loud noises are more apt to be already occurring in the area and be more tolerable. In an effort to minimize any potential annoyances caused by a temporary increase in noise levels, construction activities would be limited to between 8:00am and 5:00pm, Monday through Friday. These measures would further ensure no significant impacts as a result of a short-term increase in noise.

As the project is located within an industrial area, construction and operational noise is not expected to disturb residents and other sensitive noise receptors. The former gravel pit site currently produces minor levels of noise localized to the project site from RAP and snow storage activities. During operation of the compost facility, there will be noise from equipment, such as from an industrial grinder and front-end loaders. Noise from vehicular traffic created by operation and maintenance of the facility, in most cases, will be incidental in relation to the existing traffic use of surrounding roadways. With the implementation of proper mitigation measures in compliance with local ordinances, the potential operational noise impacts will be less than significant.

3.4 Geological and Soil Resources

Geological Resources. Geological resources are defined as the topography, geology, and geological hazards of a given area. Topography is typically described with respect to the elevation, slope, aspect, and surface features found within a given area. The topography of a proposed project site can be determined with topographic maps published by the U.S. Geological Survey (USGS), the Bureau of Land Management (BLM), or through Geographic Information System (GIS) datasets available online. The topography and soils at a project site are characterized prior to construction to assess suitability for construction and potential for erosion. The geology of an area might include bedrock materials, mineral deposits, soils, paleontological resources, and unique geological features. The principal geologic hazards include landslides and seismic activity, such as earthquakes. The stability of structures financed by the Congressionally directed spending may be influenced by steep slopes, soil stability, and karst topography and these factors are considered during design and construction.

Soil Resources. Soil resources are the superficial unconsolidated and usually weathered part of the earth's crust, consisting of weathered bedrock fragments and decomposed organic matter from plants, bacteria, fungi, and other living things. The value of soil as a geologic resource lies in its potential to support plant growth, especially agriculture. Soil information, to include soil surveys and soil classification, is available through the Natural Resources Conservation Service (NRCS). Soils and topography at a project site are characterized prior to construction to assess suitability for construction and potential for erosion. Soil stability is an important factor to consider to prevent soil erosion. Soil erosion has the potential to indirectly impact water resources and air quality. The degree of soil erodibility is determined by physical factors such as drainage, permeability, texture, structure, and percent slope. The rate of erodibility is based on the amount of vegetative cover, climate, precipitation, proximity to water bodies, and land use. Disruptive surface activities can accelerate the natural erosion process by exposing erodible soils to precipitation and surface runoff.

Hydric Soils. Hydric Soils are soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation. Hydric soils are one of the three indicators of a wetland. Wetlands are discussed in Section 3.5 (Water Resources).

Soil erosion is typically controlled using appropriate erosion and sediment control measures and best management practices (BMPs). Erosion control BMPs may include the use or installation of sandbags, silt fences, earthen berms, fiber rolls, sediment traps, erosion control blankets, check dams in medium-sized channels, or straw bale dikes in a smaller drain channels. Other BMPs can also be specified in a selected project's stormwater pollution prevention plan and fugitive dust control plan. Erosion occurring after construction prior to site stabilization might require the implementation of BMPs such as seeding or planting stabilizing vegetation after disturbance, and silt fencing.

Factors considered when determining whether an alternative will have a significant effect on geological resources were evaluated and distinguished by the degree to which the effect impairs supported functions, and conflicts with existing federal, state, or local statutes or regulations. In general, the impacts are usually localized and restricted to the project footprint and its immediate surroundings.

3.4.1 No Action Alternative

There will be no change to geological and soil resources. There will be no disturbance to soils as there will be no construction activity under the No Action Alternative.

3.4.2 Proposed Action

For the municipal compost facility, construction will involve soil-disturbing activities, including grading necessary to establish level surfaces for paving and cement work. Approximately, two to five acres will be affected by grading activities for the compost facility. The gravel pit consists of an elevated delta deposit of sandy gravel. As the site has been excavated over the course of several decades, it currently consists of mostly silt, sand, and gravel and is bare earth at this stage. Excavating and soil disturbance activities will be minimal. Excavated dirt material will be reused on the project site.

The entire site will eventually be paved or otherwise surfaced for the ZWS project. Paved streets will contain underground storm drainage system. During construction, the CBJ will have a Storm Water Pollution Prevention Plan with various BMPs for controlling stormwater and any potential spills. A Construction General Permit for Storm Water Discharges for Large and Small Construction Activities (2021 CGP, AKR100000) will also be obtained. Stormwater for the proposed action is discussed in Section 3.5.2 (Water Resources).

In summary, short-term and long-term impacts to geologic and soil resources are anticipated to be to less than significant given the compliance requirements and implementation of BMPs to control stormwater runoff.

3.5 Water Resources

Water resources include surface water, groundwater and drinking water, wetlands, and floodplains. Evaluation of water resources examines the quantity and quality of the resource and its demand for various purposes.

Surface Water

Surface water resources consist of lakes, rivers, streams, wetlands, estuaries, and the coastal waters. Surface water is important for its contributions to the economic, ecological, recreational, and human health of a community or locale. Year-round presence of water in surface water features varies, falling into the categories of perennial, intermittent, and ephemeral. Stormwater is an important contributor to surface water systems and is a potential source of sediments and other contaminants that might degrade downstream waters.

Estuaries. Critical coastal habitats, such as estuaries, provide spawning grounds, nurseries, shelter, and food for finfish, shellfish, birds, and other wildlife. Estuaries (including bays and tidal rivers) are bodies of water that provide transition zones between fresh river water and saline ocean water. This interaction produces an environment suited to unique wildlife and fisheries and contributes substantially to the U.S. economy. Estuaries are typically classified by their geomorphological features or by water circulation patterns and can be referred to by many different names, such as bays, harbors, lagoons, inlets, or sounds, although some of these water bodies do not strictly meet the above definition of an estuary and are fully saline. The banks of many estuaries are amongst the most heavily populated areas of the world, with about 60 percent of the world's population living along estuaries and the coast.

Coastal Watersheds. Ocean shorelines provide habitat for fish, shellfish, and other animals, and support recreational activities. The coastal watershed starts up at the beginning headwaters of the streams and rivers that ultimately drain down to the coastal areas. As the streams and rivers flow to coastal waters, they are influenced by many land and water uses. They pass through upland areas used for a variety of purposes such as farming, housing, businesses, recreation, and conservation. Upon reaching the coastal areas, the rivers empty into estuaries, which provide a unique habitat for a diverse group of organisms. Among other habitat functions, rivers and estuaries provide breeding and feeding grounds for a variety of aquatic and terrestrial animals. Nearshore waters, the areas directly offshore from the beach, are part of the coastal watershed because they are influenced by the activities going on along the shoreline and by pollutants coming from the land. Farther offshore are coral reefs (in tropical areas) and other offshore habitats that are part of the coastal watershed as well.

Freshwater Lakes and Reservoirs. Lakes are bodies of relatively still water, which can be formed from many processes, including glaciation, tectonic movements, volcanic activity, and rivers. Reservoirs are rivers that have been dammed for human uses (e.g., water supply, power generation, recreation). The water in lakes can be supplied by streams and rivers, groundwater, or melting glaciers.

Groundwater

Groundwater consists of subsurface hydrologic resources. It is an essential resource often used for potable water consumption, agricultural irrigation, and industrial applications. Groundwater typically can be described in terms of its depth from the surface, aquifer or well capacity, water quality, surrounding geologic composition, and recharge rate. Hydrogeology extends the study of the subsurface to surface water-bearing features. Hydrogeological information helps in the assessment of groundwater quality and quantity and its movement.

Aquifers. An aquifer is the geologic layer that transmits groundwater, such as a layer of gravel or sand, a layer of sandstone or cavernous limestone, a rubbly top or base of lava flows, or even a large body of

massive rock, such as fractured granite, that has sizable openings. Aquifers can be unconfined (no layer to restrict the vertical movement of groundwater) or confined (bounded by clays or nonporous bedrock). They can be further discussed in terms of origin, thickness, or hydraulic conductivity (the rate at which water can transmit though an aquifer). These characteristics are inherently dependent on regional and local geology.

Wetlands

Wetlands are areas where water covers the soil or is present either at or near the surface of the soil all year or for varying periods of time during the year, including during the growing season. Water saturation (hydrology) largely determines how the soil develops and the types of plant and animal communities living in and on the soil. Wetlands support both aquatic and terrestrial species. The prolonged presence of water creates conditions that favor the growth of specially adapted plants (hydrophytes) and promote the development of characteristic wetland (hydric) soils. Wetlands vary widely because of regional and local differences in soils, topography, climate, hydrology, water chemistry, vegetation and other factors, including human disturbance.

The U.S. Army Corps of Engineers (USACE) and EPA defines wetlands for regulatory purposes as *"areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."*

Wetlands found in the United States fall into four general categories—marshes, swamps, bogs, and fens. Marshes are wetlands dominated by soft-stemmed vegetation, while swamps have mostly woody plants. Bogs are freshwater wetlands, often formed in old glacial lakes, characterized by spongy peat deposits, evergreen trees and shrubs, and a floor covered by a thick carpet of sphagnum moss. Fens are freshwater peat-forming wetlands covered mostly by grasses, sedges, reeds, and wildflowers.

Floodplains

Floodplains are the lowland and relatively flat areas adjoining inland and coastal waters and other flood prone areas such as offshore islands. Floodplains are closely integrated with the function and utility of all water resources due to their effect on water moving toward the coast (from upland precipitation and snowmelt) and floodwaters moving landward (from upstream and offshore storms).

3.5.1 No Action Alternative

Under the No Action Alternative, current existing conditions of surface water, groundwater, wetlands and floodplains will remain the same and no impacts will occur. The No Action Alternative assumes that the proposed project is not implemented.

3.5.2 Proposed Action

Construction on previously developed sites might result in impacts to surface water through soil-disturbing activities, including grading necessary to establish a level surface for construction, and by the construction of the infrastructure. Soil disturbance increases the potential for soil erosion to occur; eroded soil and stormwater runoff and discharges might flow into water resources increasing turbidity and degrading the water quality.

Lemon Creek, an urban stream within the CBJ, is the receiving waters for stormwater. Lemon Creek has appeared on Alaska's list of impaired waterbodies since 1990. The Clean Water Act Section 303(d) list for impaired and total maximum daily loads (TMDLs) identifies three stressors responsible for the creek's impaired status: sediment, turbidity, and habitat modification. Lemon Creek has a total maximum daily load (TMDL) for turbidity. Identified sources contributing sediment and turbidity to Lemon Creek include material stockpiling, gravel operations, road surfaces and embankments, and urban stormwater runoff.

The former gravel pit has been identified as one of the sources of sediment in Lemon Creek. Erodible silts, sands and gravels make up the floor of the gravel pit. Current usage at the gravel pit requires a Multi-Sector General Permit (MSGP) for stormwater discharges associated with industrial activity. BMPs are currently employed to limit erosion and treat stormwater prior to discharge into Lemon Creek as part of the site's storm water pollution prevention plan. The site currently uses a sediment basin/catchment pond to treat stormwater before discharge. The sediment settling pond has been sufficient for gravel pit operation in accommodating all runoff and therefore should be appropriate for the site development work. Standard construction stormwater BMPs will also be employed during site development work, such as erosion prevention and sediment controls. In addition, a Construction General Permit for Storm Water Discharges for Large and Small Construction Activities (2021 CGP, AKR100000) will be obtained. This project will include major stormwater controls to be added to the site, which will be beneficial for the impaired waterbody. Based on this, short-term and long-term impacts from the proposed action to surface waters are anticipated to be to less than significant.

There are no wetlands present at the project site. The project does not impact any floodplains. The project is not located near any wild or scenic rivers. The site is not over an aquifer and does not impact any wells or groundwater. Therefore, there will be no impact to these resources.

In operations of the compost facility and future ZWS project, any area that accepts material will be an impervious surface. This prevents leeching of material into the soil through rain and other weather events. Overall, impacts to water resources are anticipated to be less than significant. The project site avoids water resources to the maximum extent practical. The implementation of BMPs includes measures to reduce or eliminate sedimentation and manage stormwater at the site. Therefore, impacts resulting from the proposed action are anticipated to be short-term and less than significant.

3.6 Biological Resources

Biological resources refer to the living landscape – the plants, animals, microorganisms, and other aspects of nature – and are a component of every ecosystem. Biological resources fall into two broad groupings: flora (plants) and fauna (mammals, birds, reptiles, amphibians, fish, and invertebrates), including their behaviors, assemblages, habitat, and interactions within the overall ecosystems within which they are found. The structure and function of an ecosystem is largely determined by energy, moisture, nutrient, and disturbance regimes, which in turn are influenced by a variety of biological and non-biological factors, including climate, geology, flora, fire, hydrology, and wind.

The analysis of impacts under NEPA can inform and facilitate compliance with other environmental laws applicable to biological resources and vice versa. Aspects of biological resources management and activities for funded Congressionally directed spending projects are regulated by federal laws and regulations such as the Endangered Species Act (ESA; 16 U.S.C. § 1531 *et seq*.), Marine Mammal

Protection Act (MMPA; 16 U.S.C. § 1361 *et seq*.), Migratory Bird Treaty Act (MBTA; 16 U.S.C. § 703 *et seq*.), and Bald and Golden Eagle Protection Act (BGEPA; 16 U.S.C. § 668 *et seq*.).

Species of birds, mammals, reptiles, amphibians, fish, and microorganisms – and their supporting habitat – present on project sites will vary considerably from site to site. Additionally, some wildlife species are present year-round on sites whereas others are present only temporarily (e.g., migration route or nesting). However, most of the Congressionally directed spending projects considered for funding are in urban/built-up lands (neighborhoods, towns, and cities with streets, residences, commercial building, park lands, etc.) which typically do not support dynamic and substantial biological communities. Developed areas and urban landscaping provide little ecological benefit to most plant and animal species, although some species can adapt to sparse natural resources associated within urban environments. Generally, wildlife and vegetative communities in urban/built-up lands tend to support a lower density and diversity of species and a reduction of quality and quantity of ecological resources.

An evaluation of impacts to biological resources involves a comparison of current and future proposed conditions and a projection of the extent to which the alternatives might alter the current flora and fauna, migratory birds, threatened and endangered species and designated critical habitat, essential fish habitat, and wetlands.

3.6.1 No Action Alternative

Under the No Action Alternative, current existing conditions of vegetation/flora, wildlife/fauna and rare, threatened and/or endangered species will remain the same. The No Action Alternative will not result in any construction-related habitat disturbances that are discussed below. The No Action Alternative assumes that proposed projects are not implemented; therefore, there will be no impacts to biological resources as a result of the No Action Alternative.

3.6.2 Proposed Action

It is assumed that the construction projects on undeveloped sites result in greater impacts to biological resources, including flora, fauna, and rare, threatened and endangered species, than on a disturbed site. Construction activities at undeveloped sites might result in greater ground disturbance, erosion, vegetation clearing, and habitat fragmentation than might occur at a developed site. Wildlife in the vicinity of undeveloped sites might be more likely to startle from construction or operational noise than at a previously developed site where wildlife is habituated to operational noise. Impacts associated with increased impervious runoff might be incrementally more likely to occur at a developed site than at an undeveloped site.

Impacts to biological resources, including flora, fauna, and rare, threatened and endangered species, as a result of construction of projects on previously developed sites are generally anticipated to be less than those of the undeveloped sites. Projects occurring on developed sites are assumed to have few to limited wildlife/fauna inhabiting the project site. Wildlife in the vicinity of developed sites might be less likely to startle from construction or operational noise as wildlife might be habituated to operational noise. Construction activities at developed sites might result in less ground disturbance, erosion, vegetation clearing, and habitat fragmentation than would occur at an undeveloped site, as the site has previously been disturbed and therefore have less established vegetation or habitat. Impacts associated with increased impervious runoff might be incrementally greater as there are likely existing impervious surfaces at a developed site.

Projects occurring on developed sites are assumed to have less contiguous habitat and less sensitive plant species. It is also assumed that developed sites have a relatively high percentage of non-native or invasive vegetation than an undeveloped site. Potential impacts are anticipated to be mitigated through site selection, site design, timing of construction activities, and implementation of best management practices and standard operating procedures (SOPs), which are discussed in greater detail below. Due to these reasons, impacts to biological resources resulting from these project types are anticipated to be less than significant.

Vegetation/Flora. Implementation of the proposed action would be restricted to previously disturbed areas of the former gravel pit. The site is mostly gravel and bare earth at this stage. However, a variety of native 'volunteer' and pioneer species are growing on the site, including alder trees, feltleaf willows, white spruce, western hemlock, fireweed, invasive creeping buttercup, red fescue, native yarrow, native primroses, native saxifrages, and other native plants that will need to be removed for stormwater control construction. Approximately seven acres of total trees and brush, mostly alders and a few native spruce and hemlock trees (approximately three inches in diameter at chest height) will be removed as part of the construction of the compost facility and future ZWS project, but these are a very common pioneer species in southeast Alaska. Once construction activities are completed, landscaping with native species will be planted in this area due to Juneau's climate. Since all project activity would be restricted to previously developed areas of the gravel site that have already been disturbed, the proposed action will not likely cause disturbance to vegetation beyond the project site boundaries.

Wildlife/Fauna. Construction activities are likely to generate noise. Noise generated during construction has the potential to startle nearby wildlife who might temporarily flee the area. Noise related effects are limited to the construction period and will cease at the completion of construction. Minor, short-term effects on wildlife that use the site are anticipated as they might be deterred by the construction activities, vehicles, and equipment. Impacts to wildlife and fauna would be avoided by the project.

A report generated through the U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) website identified that there are no migratory birds with potential to occur in the project area. Since the project site is mostly bare and only contains minimal pioneer vegetation, no impacts to migratory birds or their nesting sites are anticipated.

Rare, Threatened and Endangered Species. Rare, threatened and endangered species or critical habitat can potentially be located on project sites. Impacts can occur through the loss or disturbance of habitat (including breeding areas and migratory stop-over locations), habitat fragmentation (which in turn might affect movement and migration), loss of food and prey species, introduction of new species, and changes in water availability.

The construction of the compost facility and ZWS projects would not occur on the habitat of nor impact any endangered or threatened species, and there is no designated critical habitat within the project area. According to the National Marine Fisheries Service's (NMFS) Marine Mammal Species Range and Critical Habitat Mapper, no Critical Habitat was mapped that would be directly affected by the proposed action. In addition, NMFS Essential Fish Habitat mapper determined that there is no essential fish habitat in the project area and that the proposed action would have no effect on essential fish habitat. Therefore, there will be no effect on threatened and endangered species under NMFS jurisdiction from the proposed action. A report generated through the USFWS IPaC website identified that there are no

listed threatened, endangered, or candidate species in the project area. Therefore, there will be no impact to USFWS listed species due to the project.

Overall, impacts from the proposed action to biological resources are anticipated to be minimal and less than significant.

3.7 Hazardous and Toxic Materials and Waste

Hazardous substances are defined as any solid, liquid, contained gaseous or semisolid waste, or any combination of wastes that pose a substantial present or potential hazard to human health and the environment. Improper management and disposal of hazardous substances can lead to contamination of groundwater and surface water, including drinking water supplies, and soils.

An Underground Storage Tank (UST) is defined as a tank and associated piping with ten percent or more of its volume below the ground which has stored or is storing a regulated substance. Regulated substances include petroleum-based substances (motor fuels, motor oil, home heating fuels, solvents, etc.) and any other substance which, if released into the environment, present substantial danger to public health, welfare, or the environment. The greatest potential threat from a leaking UST is contamination of groundwater, the source of drinking water for nearly half of all Americans.

Construction activities might require equipment that utilizes hazardous materials such as petroleum fuels and oil. During construction activities, such hazardous materials might accidentally be spilled or otherwise released into the environment exposing construction workers, the public and/or the environment to potentially hazardous conditions. Grant recipients are responsible for properly maintaining construction vehicles and equipment, along with any hazardous and toxic materials used in their operation, in compliance with applicable laws and regulations. Grant recipients are also responsible for the appropriate disposal of all hazardous waste generated during construction in compliance with applicable laws and regulations. All hazardous and regulated materials or substances shall be handled according to safety data sheet instructions. With environmental protection measures, including BMPs and standard operating procedures (e.g., spill kits), for preventing and responding to potential contamination, impacts are anticipated to be less than significant.

3.7.1 No Action Alternative

There will be no change to hazardous material usage or the generation of hazardous waste under the No Action Alternative. There will be no impact to existing hazardous waste sites or remediation efforts at sites.

3.7.2 Proposed Action

The construction of the compost facility is not expected to have a significant amount of construction/demolition waste as part of the project. Construction/demolition materials will be recycled on site, where feasible to do so. Removal of pioneer vegetation species would generate a small amount of waste, but this waste would primarily be recycled for compost. Excavated soils (primarily gravel and fill) will be reused on the project site or other CBJ projects. Any construction and demolition waste that cannot be reused or recycled will be appropriately disposed of at the landfill.

Operation of the compost facility has the potential for odor issues, especially in the initial phase of the composting operation at the site. However, the current compost operation nearby does not receive

odor complaints from nearby businesses. Odor management will be a requirement of the solid waste permit with the Alaska Department of Environmental Conservation.

Overall, all solid wastes produced during construction will be handled and disposed of on site. No tanks will be needed for petroleum products. No hazardous waste will be generated by the construction activities. The CBJ will have a spill prevention and cleanup plan for potential spills and a stormwater pollution prevention plan with various BMPs for controlling stormwater and spill managment. There are no contaminated or identified Superfund sites near the gravel site. Therefore, impacts are anticipated to be less than significant.

Appendix A. Project Area and Location

See attached appendix