

SOUTH BAYSIDE WASTE MANAGEMENT AUTHORITY

GREEN BOND FRAMEWORK



June 2019



ABOUT SOUTH BAYSIDE WASTE MANAGEMENT AUTHORITY

The South Bayside Waste Management Authority (SBWMA), also known as ReThinkWaste, is a joint powers authority of twelve public agencies in San Mateo County, California. SBWMA owns and manages the Shoreway Environmental Center, which serves as a regional solid waste and recycling facility for the receipt, handling and transfer of refuse, recyclables and organic materials collected from the service area. Over 80% of the waste handled at Shoreway is collected by a common franchise hauler, whose contract is negotiated by SBWMA but entered into by each of the members. The Shoreway Center itself is also operated by a contractor, who is responsible for hauling materials as appropriate to recycling and composting facilities or to a landfill.

Most, if not all, of SBWMA's member agencies have created Climate Action Plans that stress solid waste management activities as major contributors to, and major potential reducers of, greenhouse gas (GHG) emissions. In fact, increasing composting, recycling participation and other ways to increase diversion rates provide some of the highest measurable GHG emission reductions among all actions in those Climate Action Plans.

The mission of SBWMA is to "support our Member Agencies' economic, public health, climate action plan and zero waste priorities by providing innovative solid waste and recycling programs that encourage reduction, reuse, recycling and rotting/composting through education, technical assistance and infrastructure." Several guiding principles drive the organization toward this mission including:

- Reduce and mitigate facility impacts by eliminating recyclables sent to landfill,
- Make prudent investments in proven infrastructure for materials collection and processing that can be adapted to changing circumstances,
- Support demonstration projects that reduce/sequester carbon emissions, and
- Meet the requirements of California State Law, including SB 1383, which requires diverting 50% of organic matter from landfills by 2020 and 75% by 2025.

The SBWMA's Green Bond program will be the natural extension of the main tenant of the "Triple-Zero" effect that SBWMA strives to achieve: zero organics to landfill, zero recyclables to landfill, and zero net greenhouse gas emission in operations. The proceeds of the Green Bonds will be used toward meeting these goals.

INTRODUCTION

“Green Bonds” is a term used to denote bond issues the proceeds of which are expected to be used on projects that reduce greenhouse gases, mitigate climate change, or provide other environmental benefits. A Green Bond Framework (Framework) sets out how the bond issuer proposes to use the proceeds of Green Bonds in a manner consistent with its sustainable and other environmental values. The Framework is also designed to ensure the transparency and disclosures investors need to make an informed Green Bond investment.

While the market for taxable corporate Green Bonds has begun to mature, and investors are willing to make concessions for the designation, the U.S. tax-exempt market is relatively new and, as of the date of this Framework, a pricing advantage has yet to become apparent. SBWMA’s Green Bond issuance, as articulated by this Framework, will help support the development of a robust municipal Green Bonds capital marketplace, where investors who share in valuing sustainability can reward such efforts with their investment, eventually resulting in a reduced cost of capital for such projects.

To help support growth in the Green Bond market, several organizations have been created. The International Capital Market Association (ICMA) first published its “Green Bond Principles” (GB Principles) because there is no single or specific legal framework under which Green Bonds are issued. The GB Principles were an effort to create a degree of standardization, to provide greater transparency within the market and comparability across bond issuance projects with environmental benefits. The GB Principles note that opportunities in prevention, reuse, recycling, and energy recovery can achieve significant mitigation by reducing landfill emissions, reducing emissions linked to resource extraction and production using virgin materials, and providing an alternative energy source that substitutes for fossil fuels. This Framework is designed to address each of these components.

To further support the Green Bond market, the London-based Climate Bonds Standards Board provides a certification program. The Board established the Climate Bond Initiative (CBI) to increase transparency in this market and provide a form of calibration for securities labeled as “Green Bonds.” The Climate Bonds Taxonomy indicates that they believe a number of solid waste activities are compatible with the Standard, including facilities for recycling of metals, plastic, glass and paper and facilities for the production of biogas or compost from organic waste. These are the key activities for which SBWMA was formed.

While the Climate Bond Initiative has created a category of Green Bonds referred to as “Waste,” they have not yet published criteria for this sector, so bonds cannot be verified by a third-party and certified by CBI. CBI convened a waste management technical working group in 2017 to develop new sector criteria, whose initial draft criteria was released in June 2019 and proposed eligibility criteria that would include “facilities processing mixed recyclables into separate glass, metal, plastic, paper, etc. [as] automatically eligible to qualify for the mitigation component of certification.”

Given the current lack of formally agreed-upon standards for the types of activities undertaken by SBWMA, this Framework establishes guidelines generally aligned with the GB Principles Taxonomy and the CBI’s initial work in this sector.

In a related area, the 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides “a shared blueprint for peace and prosperity for people and the planet.” This

Agenda states 17 Sustainable Development Goals (SDGs). SBWMA's operations, including its Series 2019 A and B Bond offerings, align with two of the SDGs:



SDG 9: Industry, Innovation and Infrastructure, which includes targets to upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes.



SDG 12: Responsible Production and Consumption, which includes targets to substantially reduce waste generation through prevention, reduction, recycling and reuse.

THE BOND-FINANCED PROJECTS

As discussed in the Introduction of this Framework, both the ICMA and CBI recognize recycling as substantially contributing to the reduction of GHG emissions through the displacement of emissions associated with raw material extraction and materials production. In addition, the U.S. Environmental Protection Agency's (EPA) Office of Solid Waste and Emergency Response found that 42 percent of GHG emissions in the United States in 2006 were associated with the manufacturing, use and disposal of materials and products.¹ As a result, changing materials management patterns is an important strategy to help reduce or avoid GHG emissions.

In most cases, recycling reduces GHG emissions because manufacturing a product from recycled inputs requires less energy than making the product from virgin inputs. Recycling paper and cardboard has the added benefit of increasing the amount of carbon stored in forests. Recycling further reduces emissions by diverting materials from landfills and avoiding the associated production of methane. The anaerobic digestion of the organics contemplated by the "Organics-to-Energy Pilot Project" or "O2E" project will further reduce GHG emissions by capturing biogas from the digestion of organic materials to produce electricity or biofuel, offsetting emissions from fossil fuel consumption.

The 2019 Green Bonds will be issued in two series. Series 2019A will refund SBWMA's Series 2009A Bond. Series 2019B represents a new-money component, primarily to buy new materials recovery equipment and make other improvements to the Facility.

The Refunded Original Project

SBWMA's Series 2009A Bonds, which are being refunded by the 2019A bonds, were issued primarily to finance the renovation of the existing materials recovery and transfer facilities at the Shoreway Environmental Facility, including the expansion of both facilities, and the installation of new sorting equipment, which is the heart of the operation and provided for the diversion of more recyclable material at a lower cost. These improvements allowed for increased collection of recyclables, from every other week to weekly. It also allowed for conversion of the recycling program from source-separation (into tubs) into a single stream of mixed-recyclables collected in large carts. The ability for homes and businesses to mix recyclables significantly increases participation and allowed for an increase of about 25% in waste diversion. The improvements also increased the ability of the operation to handle organic materials, accommodating the increase in the collection of plant materials from bi-weekly to weekly. These improvements in waste diversion capacity, in order to accommodate more recyclables and plant materials, required that the facility be able to accommodate increased traffic. Therefore, a portion of the proceeds also financed circulation and scale house improvements. The proceeds also financed various improvements to reduce stormwater impacts of the facility.

¹ US EPA's "Opportunities to Reduce Greenhouse Gas Emissions through Materials and Land Management Practices" available online at <https://www.epa.gov/sites/production/files/documents/ghg-land-materials-management.pdf>

Table 1 summarizes the use of the proceeds of the Series 2009A Bonds that are being refunded.

Table 1. Summary of Use of Proceeds of Series 2009A Bonds being refunded

Category	Investment
Design and management	\$ 5.3 million
Traffic and scale house improvements	\$ 2.4 million
Materials Recovery Facility and Transfer Facility Expansion	\$17.7 million
Materials Recovery Equipment	\$16.9 million
Contingency	\$ 3.5 million
Total	\$45.8 million

The improvements increased recycling capacity at the Shoreway facility from 230 tons to 300 tons a day. The amount of plant material diverted increased as well, with transfers increasing from 250 tons to 350 tons a day. In addition, installation of solar panels atop the Material Recovery Facilities (MRF) allows for the generation of enough electricity to fully operate the recycling facility, which consumes half of the electricity SBWMA consumes. The MRF building also achieved a gold-level LEED certification.

The 2019 Projects

The Series 2019B bonds will finance approximately \$20 million in new improvements, as shown below.

Table 2. Summary of new improvements

2019 Project Component	Cost
Materials Recovery Facility Equipment Improvements	\$15.58 million
Organics-to-Energy Pilot Project	\$ 1.25 million
Compressed Natural Gas (CNG) Fueling Station	\$ 3.17 million

Materials Recovery Equipment Improvements

Because of changes in the production and disposal of composite materials (e.g., paper containers with plastic liners, which cannot profitably be recycled at present) and Amazon’s and other companies’ cardboard and other packaging materials, market forces have made SBWMA’s processing of new materials far more challenging than before. For example, the Shoreway MRF was designed in the late 2000’s to address in large part the recycling of newspaper, now a declining feedstock. In addition, contamination standards have increased for recycled materials stock. In response to the need to improve fiber commodity quality to ensure market outlets, SBWMA zeroed in on automation of MRF sorting as a key strategy toward the goal of improving material quality. Four projects with financial, commodity market, and operational benefits were selected:

- **Optical Sorting of Small Fiber:** bond proceeds will be used to finance bulk handling system optical sorting technology to sort contamination (cardboard and containers) out of mixed paper to capture more commodity revenues and clean “mixed paper” to higher value “high-grade paper” standards.
- **Robotic Sorting of Residue and Quality Control System:** proceeds will also be used to install a system that utilizes advanced recognition and artificial intelligence technology to identify and sort a wide variety of materials, lowering sort labor expenses, increasing the capture of recyclable

materials and recording/reporting fiber composition and quality (at the end of all fiber sort lines) to enable the complete optical sort system to meet the fiber quality standard for high grade paper.

- **Enhanced Glass Cleanup System:** These improvements will remove glass system contaminants like batteries (reducing fire risk) and increase commodity retention and revenue through a combination of magnets, screening and air.
- **Sort System Upgrades:** Other improvements will further transition the MRF to high-speed optical sorting technology from manual sorting to remove contamination (i.e., materials that can be isolated and sold at a premium) and meet new paper quality standards. Six-optical sorters will replace manual sort labor and facilitate the upgrade of mixed paper to “high-grade” paper and recovery of additional recyclables. These improvements will be installed prior to the others so that improvements in commodity quality can be assessed prior to the final project’s design and construction is completed.

Organics-to-Energy Pilot Project

This component of the 2019 Project consists of the acquisition and installation of equipment that will process approximately 75 tons of organics materials per day (the “Organics-to-Energy Pilot Project” or “O2E”). The organic materials to be processed include approximately 50 tons per day of source-separated organic materials such as food waste delivered from commercial establishments and approximately 25 tons of solid waste material. The solid waste material is subjected to high compression to extract the organic material from contamination such as plastic and grit, and water is added to make a slurry. The organic slurry material will be transported to two existing wastewater treatment facilities that currently utilize similar organic materials for the generation of biogas and electricity.

In addition to the \$1.25 million of the proceeds of the Series 2019 Bonds to pay the costs of the Organics-to-Energy Pilot Project, the Authority will use \$3 million of grant moneys that have already been received from the California Department of Resources Recycling and Recovery and \$1 million of grant moneys received from the County of San Mateo.

CNG / Bio-CNG Fueling Station

In support of Recology, SBWMA’s collections partner, who is acquiring compressed natural gas (“CNG”) collection vehicles, approximately \$3.17 million of the proceeds of the Series 2019 Bonds will be used to pay the initial costs of a new CNG fueling system at Shoreway Environmental Center. This project will accommodate reduced use of diesel fuel by replacing it with a cleaner burning fuel that generates fewer GHG emissions. The project will also replace an underground tank to eliminate future potential groundwater contamination. The SBWMA estimates that the complete project, which is currently expected to cost approximately \$6.5 million, will reduce greenhouse gas emission by approximately 20-23%. If the full O2E project is undertaken, there are plans to bring bio-CNG from the waste water treatment plants to Shoreway to mix with CNG to fuel the collection fleet.

New Money Summary

The various projects and upgrades funded by the 2019B new money proceeds are intended to increase the operational efficiency of the Shoreway Environmental Center and meet the “Triple-Zero” goals of SBWMA. Some of the main ways these projects will contribute to these goals are:

- Increase the quantity and quality of materials recovered, thereby increasing the volume of substitute materials for virgin materials.
- Capture additional cardboard and containers and other additional recyclables, reducing recyclables going to landfill.
- Reduce food waste going to landfill and convert these organics to green energy.

- Reduce the carbon intensity of the transportation fleet by replacing diesel with CNG and Bio-CNG.

FRAMEWORK OVERVIEW

This Green Bond Framework sets out how SBWMA's environmental sustainability objectives, corresponding financed activities, and reporting procedures align with green standards.

This includes:

- Funding for green assets or projects;
- The process followed to determine how the projects fit within the eligible Green Projects categories; and
- The related eligibility criteria, including, if applicable, exclusion criteria or any other process applied to identify and manage potentially material environmental and social risks associated with the projects.

This Framework aligns with the International Capital Market Association's Green Bond Principles and Climate Bonds Initiative's Climate Bonds Standard, and is presented using the four core components:

1. Use of Proceeds

Internal controls for how proceeds of the bond will be used

2. Process for Project Evaluation and Selection

Internal process for determining eligible projects

3. Management of Proceeds

Allocation of funds upon closing and investment policy

4. Reporting

Plan for informing investors on use of proceeds and evaluation impact metrics

SBWMA will issue its 2019 Green Bonds, and any future green bonds, in accordance with this Framework, which may be updated as needed.

USE OF PROCEEDS

Internal controls for how proceeds of the bond will be used

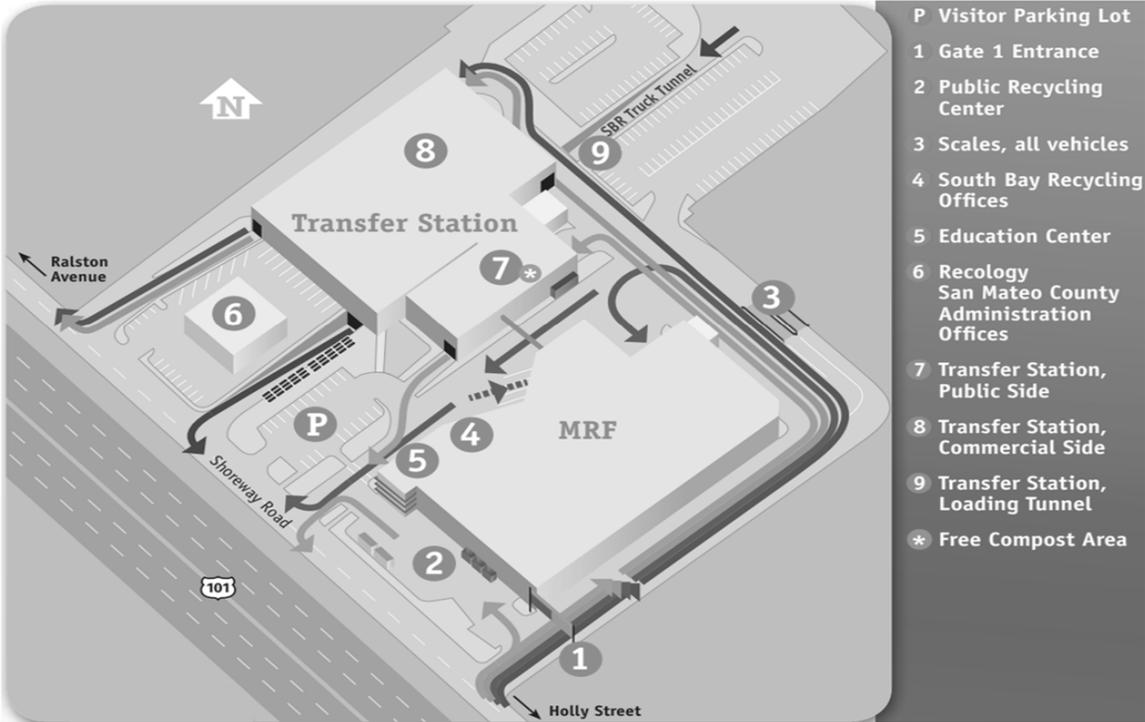


To ensure all designated Green Projects provide clear environmental benefits, SBWMA's projects meet eligibility criteria described in the following section. These criteria align with the internationally recognized Green Bond Principles

Further, SBWMA ensures proceeds of bond(s) used for green projects are appropriately described in the legal documentation for the security. As such, a clear process and disclosure is provided, which others may use to understand the characteristics of any given Green Bond.

ALL PROCEEDS OF THE GREEN BOND(S) WILL BE ALLOCATED AND SPENT EXCLUSIVELY TO FINANCE OR REFINANCE, IN WHOLE OR IN PART, ELIGIBLE GREEN ASSETS.

ELIGIBLE PROJECTS/ GREEN ASSETS



The International Capital Markets Association has identified several project types that align with its Green Bond Principles (GB Principles) and meet the goals of achieving greater environmental sustainability. Eligible Green Project categories include renewable energy and pollution prevention and control (including reduction of air emissions, greenhouse gas control, waste prevention, waste reduction, waste recycling and energy/emission-efficient waste to energy).

The GB Principles explicitly recognize several broad categories of eligibility for Green Projects, which contribute to environmental objectives. According to the Climate Bonds Initiative (CBI), the waste sector has the potential to contribute a 10-15% reduction in global greenhouse gas emissions. Opportunities in prevention, reuse, recycling, and energy recovery can achieve significant mitigation by reducing landfill emissions, reducing emissions linked to resource extraction and production using virgin materials, and providing an alternative energy source that substitutes fossil fuels. Accordingly, the projects financed and refinanced by SBWMA’s bonds, like the entire mission of the agency, are in alignment with the GB Principles.

To further support the Green Bond market, the London-based Climate Bond Standards Board provides a certification program. The Board established CBI to increase transparency in this market and provide a form of calibration for securities labeled as “Green Bonds.” CBI has published specific eligibility

requirements in several sectors, in which case compliance can be verified by a third-party and certified by CBI.

The Climate Bonds Taxonomy indicates that they believe a number of solid waste activities are compatible with currently stated emissions goals, such as projects that support a decarbonization trajectory of 2 degrees. Among the project types that CBI considers 2-degree compliant are facilities with high recovery rates of reusable or recyclable material; facilities for recycling of metals, plastic, glass and paper; and facilities for the production of biogas or compost from organic waste.²

While the Climate Bond Initiative has created a category of Green Bonds referred to as “Waste,” they have not yet published criteria for this sector, so bonds cannot be verified for CBI certification. CBI convened a waste management technical working group in 2017 to develop new sector criteria, with the stated goal of stimulating investment into low-carbon waste management activities and infrastructure. That group released initial draft criteria in June 2019, which proposed sorting facilities as an eligible green asset. The proposed eligibility criteria would include “facilities processing mixed recyclables into separate glass, metal, plastic, paper, etc. [as] automatically eligible” to meet mitigation requirements. These criteria include material recovery facilities (MRFs) such as Shoreway Environmental Center.

SBWMA was formed for the very purposes describe in the GB Principles and identified in the draft CBI criteria. All its activities contribute to the reduction in atmospheric carbon. As such, it is appropriate that the SBWMA engage the capital markets through the issuance of Green Bonds. Consistent with the CBI Taxonomy, SBWMA can characterize its activities in general, and the projects to be financed by bond proceeds specifically, into one of the following three areas that it has established as its Eligibility Criteria. These categories are outlined below in Table 3.

Table 3. Green categories for projects funded by SBWMA Bonds

CATEGORY	CRITERIA
SUSTAINABLE WASTE MANAGEMENT	Proceeds may be allocated toward the financing or refinancing of construction, operation, design and management, or upgrade of recycling infrastructure, including waste minimization, filtering, management, recycling and reuse; improvements that divert organic materials from landfills to composting, reducing GHG created by anaerobic digestion in such facilities; and the improvements to its facilities that are ancillary to such activities.
ENERGY CONSERVATION	Proceeds may be allocated toward the financing or refinancing of enhancements promoting energy conservation assets that reduce energy consumption, or mitigate GHG emissions by converting waste to energy, such as an O2E project.
SUSTAINABLE TRANSPORTATION	Proceeds may be allocated toward creating or constructing infrastructure to support lower carbon transportation and maintenance facilities, including those that reduce the use of diesel fuel in transporting waste and waste biproducts.

² CBI’s “Climate Bonds Taxonomy” available online at <https://www.climatebonds.net/files/files/CBI-Taxonomy-Sep18.pdf>

PROCESS FOR PROJECT EVALUATION AND SELECTION

Internal process for determining eligible projects

All the capital improvements undertaken by SBWMA are for the express purpose of supporting its mission of reducing the environmental impact of municipal waste by recycling reusable materials and diverting organic materials from landfills for lower carbon-impact. It is difficult to identify any activities of the agency that do not meet one of the Green Bond criteria identified in Table 3. Certainly, all the projects being financed or refinanced by its upcoming 2019 Green Bond issue meet these criteria.

SBWMA’s capital projects are identified and developed by staff, under the leadership of the Senior Facilities and Contracts Manager, in consultation with contract operators, member agencies, and appropriate consultants. SBWMA uses the Waste Reduction Model (WARM), created by the EPA, to help in prioritizing emissions-reducing measures to better meet its member agencies' and its own goals. WARM was designed as a tool to help managers and policymakers understand and compare the lifecycle GHG and energy implications of materials management options (recycling, source reduction, landfilling, combustion with energy recovery, anaerobic digestion, and composting) for materials commonly found in the waste stream.

All staff recommendations are reviewed by two committees established by the Board—the “Finance Committee” and the “Zero Waste Committee.” The latter committee, responsible for reviewing both capital and operating decisions, reflects the agency’s key goal in its very title: “Triple-Zero: Zero organics to landfill, zero recyclables to landfill, and zero net greenhouse gas emission in operations.” The recommendations of these two committees are presented to the SBWMA Board of Directors, comprised of one elected official from each of its twelve members. The projects are considered by the Board at an open meeting, properly noticed in accordance with the State’s Ralph M. Brown Act (requiring open meetings), where members of the public are heard.

SBWMA believes in transparency to both its constituents and to investors regarding the process for project evaluation and selection. It is part of SBWMA’s approval process to ensure that all its financed activities comply with internal environmental and social directives. SBWMA’s environmental and social policies can be found in the 2015 Long-Range Plan at:

https://www.rethinkwaste.org/uploads/media_items/2015-long-range-plan.original.pdf.

This plan is currently undergoing an update.

MANAGEMENT OF PROCEEDS

Allocation of funds upon closing and investment policy



The Green Bond proceeds will be allocated in full at bond closing, based on the decisions made in accordance with the process described above. Any major changes in the use of proceeds, while not likely, would require a similar approval process. Prior to the expenditure of bond proceeds, they will be held by a trustee under the bond indenture and can only be invested in the instruments specifically permitted by the indenture. In practice, the proceeds are expected to be invested in U.S. Treasuries, federal agencies, or in a money market fund that invests exclusively in such instruments.

***THE GREEN BOND
PROCEEDS ARE TO BE
FULLY ALLOCATED AT
BOND CLOSING.***

REPORTING

Plan for informing investors on use of proceeds and evaluation impact metrics

SBWMA intends to make and keep readily available a green bond post-issuance report one-year post-issuance, to be renewed annually until full expenditure of the proceeds. SBWMA intends to show the progress of expenditures from the Green Bond proceeds and report any changes in the allocation of proceeds. This report will be posted on the SBWMA website at <https://www.rethinkwaste.org>.

In addition, as a condition of SBWMA's contract with South Bay Recycling, who operates the Shoreway facility, South Bay Recycling prepares an annual report that includes various key metrics, including the total tonnage received for the year by key categories, and the amount and percentage of waste diverted. This report will also be posted on the agency's website.