



Environmental Stewardship Report

2016-2020



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From the Executive Director Seattle Housing Authority

The Seattle Housing Authority is committed to incorporating environmental stewardship into daily practices and long-term decision-making. We understand our impact on the environment and are working to minimize our carbon footprint while identifying opportunities to create healthier environments.

In 2019, the Seattle Housing Authority adopted its first **Sustainability Agenda** – developed in collaboration with more than 250 SHA staff, hundreds of SHA tenants, local government partners and community-based organizations serving SHA communities. SHA's Sustainability Agenda guides the work of our Environmental Stewardship and Sustainability Division and the agency at-large.

Working with our tenants and partners, SHA has been able to expand services, reduce impacts on the environment and deepen the agency's engagement in local and regional climate change mitigation and adaptation. This Environmental Stewardship report showcases these efforts and our strategies going forward.

You will find information on greenhouse gas emissions, energy and water use, materials management and waste, and outreach and education from 2016 through 2020 at all SHA buildings. We highlight the most up-to-date and relevant data, news and stories of our sustainability projects.

We are indebted to our many partners and SHA community members who share our commitment to environmental stewardship and sustainability and have helped make the important progress reflected in this report possible. Thank you.

A handwritten signature in black ink that reads "Rod Brandon". The signature is written in a cursive, slightly stylized font.

Rod Brandon



A Place to Live, A Place to Grow

The mission of the Seattle Housing Authority is to enhance the Seattle community by creating and sustaining decent, safe and affordable living environments that foster stability and self-sufficiency for people with low incomes.

In a variety of housing program types, SHA provides long-term, low-income rental housing and rental assistance to 37,570 people, representing 18,601 households, in the city of Seattle. SHA owns and operates 8,390 apartments and single-family homes at 364 sites throughout the city.

Additionally, SHA administers 11,749 Housing Choice Vouchers, enabling low-income tenants to receive rental assistance with other landlords in Seattle. Nearly 80 percent of those we serve are children, elderly or disabled. One in 10 students enrolled in Seattle Public Schools lives in SHA-supported housing.

We believe in providing more than housing for our tenants, and we partner with many organizations to offer an array of services and community activities to help those we serve improve their lives.



Photo credit: Hannah Wilson, Black Farmers Collective

SHA partnered with the Black Farmers Collective to develop Yes Farm, which empowers communities of color to be stewards to the land, while providing a space to grow food and access fresh produce.

Introduction

The Seattle Housing Authority’s commitment to Environmental Stewardship is guided by a Sustainability Agenda adopted in 2019. The Sustainability Agenda is grounded in benchmarks from the agency’s **first Environmental Stewardship Report** and articulates the four strategic directions for environmental stewardship:

- ① **reducing SHA’s carbon footprint**
- ② **improving SHA’s built environment**
- ③ **fostering community resilience, and**
- ④ **incorporating sustainable business practices in SHA operations**

This report summarizes SHA’s accomplishments within those four strategic directions since 2016.

The Sustainability Agenda was developed in collaboration with over 250 SHA staff, hundreds of tenants, local government partners and several community-based organizations serving SHA communities.

1 Carbon Footprint

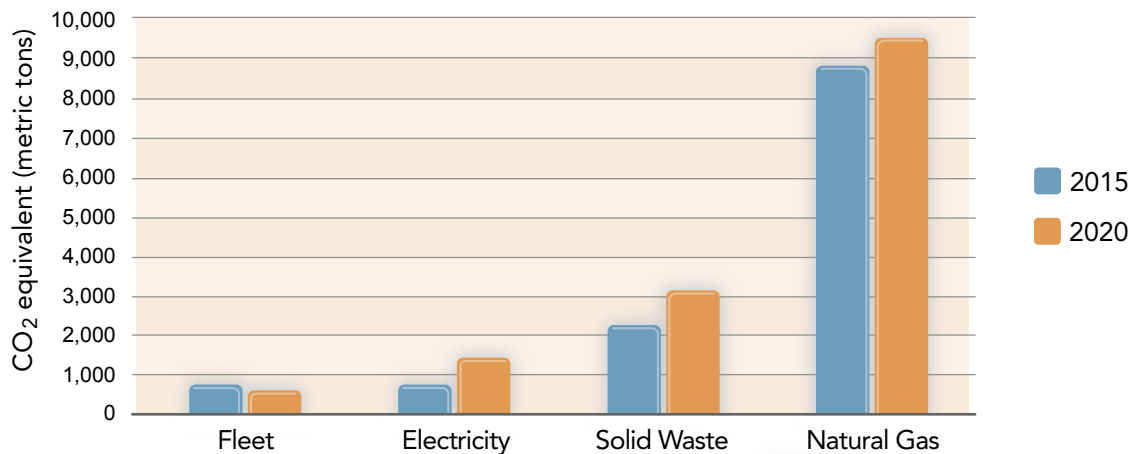
Reducing greenhouse gas emissions is essential in the fight against climate change. Calculating SHA's carbon footprint and comparing emissions year over year helps the agency identify opportunities for greenhouse gas emissions reduction as well as short-term priorities and long-term focus areas. Recent efforts to reduce emissions include fleet electrification, reduction in idling and improved waste management. Reducing emissions also reduces harmful air pollution and protects public health for the communities that SHA serves.



Emissions reduction measures:

- Reduced over-idling of fleet vehicles by 76 percent within one year through the collaborative efforts of the Environmental Stewardship team and Impact Property Services, preventing 19.9 metric tons equivalent of CO₂ emissions.
- Electrified 54 percent of passenger vehicles, surpassing the Sustainability Agenda's target of 25 percent by 2021.
- Expanded food waste collection to all buildings, diverting over 18,800 tons of food waste away from landfill, thus avoiding associated landfill emissions.

Carbon Dioxide Emissions, by Source



SHA joined the **Better Climate Challenge** aiming to reduce building emissions by 50 percent by 2032

The agency experienced an overall increase of 17 percent in emissions across all sources from 2015 to 2020. These may be because:

- Temperatures were colder on average in 2020 compared to 2015. This led to increased space heating, much of which is fueled by natural gas.
- Residents stayed at home more in 2020 due to the COVID-19 pandemic, increasing the amount of solid waste collected from SHA's buildings.

2 Building Performance

In Seattle, buildings emissions contribute to nearly a quarter of the city's carbon emissions. Building performance affects tenant comfort, utility costs and resource consumption. As a housing provider, SHA is responsible for ensuring that buildings are high performing, and since 2016 the agency has made concerted efforts to do so by focusing on energy efficiency and water conservation.



Energy

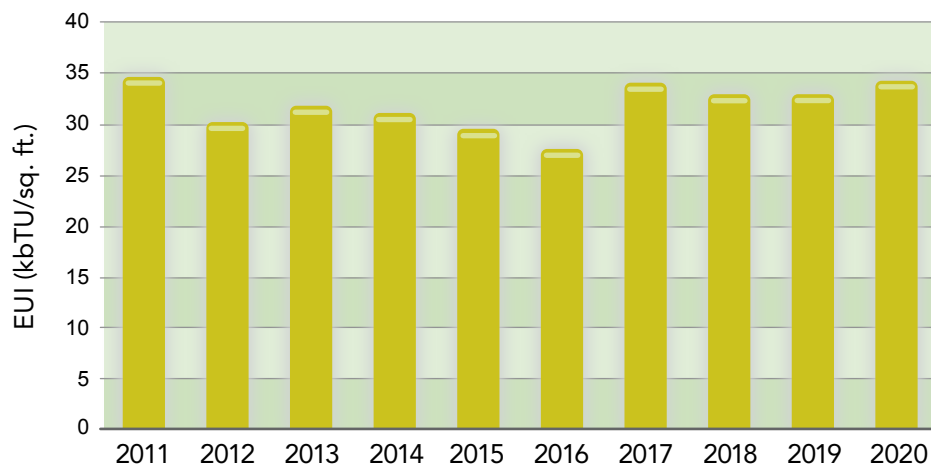
Through partnerships with the Office of Housing and Department of Commerce, SHA received over \$2 million in grants to support implementation of energy efficiency measures such as light fixture upgrades, installation of efficient heating systems, and improvement of ventilation and insulation across 35 properties. In addition to reducing energy bills, these measures also increase the comfort of tenants.

Energy efficiency measures:

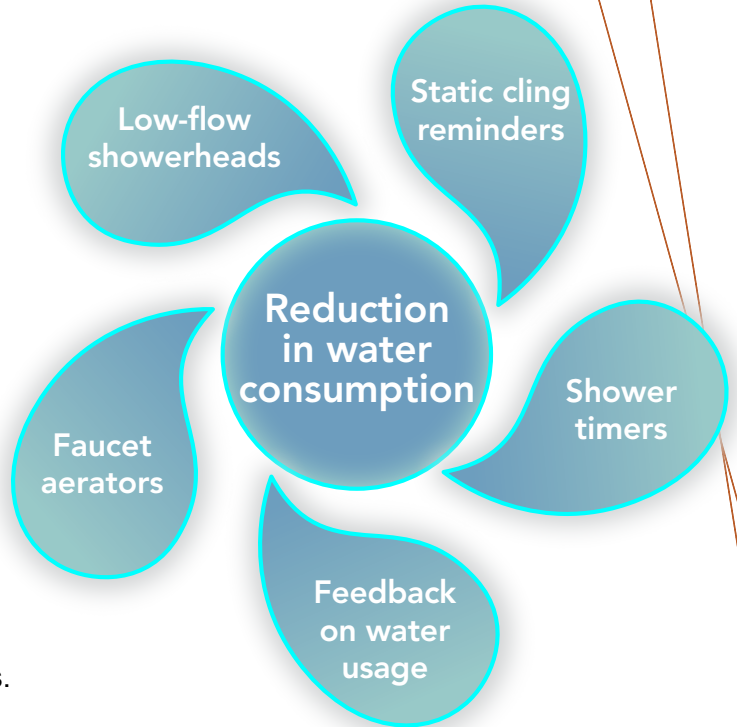
- Forty-eight hydronic boilers at **High Point** were replaced with integrated hot water and heating boilers, improving the consistency of heat and hot water.
- **Cedarvale Village** observed a reduction of 33 percent in energy consumption thanks to heat pump installations, new insulation and infiltration and ventilation improvements, saving residents \$175,000 in energy costs per year.
- **Bayview Tower's** state-of-the-art Mitsubishi heat pump water heater is one of only six in the U.S. This system can transfer up to three times more energy than it consumes, and uses a refrigerant with low global warming potential, decreasing the building's environmental impact. As one of the first of its kind in the U.S., the installation of this system exemplifies SHA's leadership in sustainability and response to climate change.

Efforts to improve building performance include tracking Energy Usage Intensity across SHA's buildings. Due to the efforts mentioned above and other energy efficiency measures, SHA's buildings are very efficient compared to the average multi-family high-rise in Seattle.

Average Annual Energy Usage Intensity



The average EUI of SHA buildings 20,000 square feet or more is significantly less than the average multi-family high-rise building in Seattle, which has an EUI of 45.6 kBTU/sf.



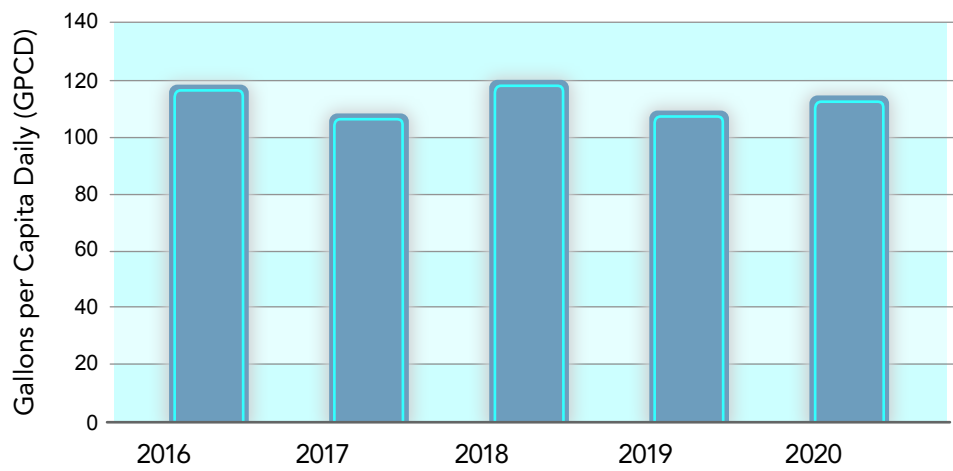
Water

Conserving freshwater resources is a highly important local and global initiative. SHA engages in water conservation efforts through a variety of methods such as tenant outreach and education, upgrade of water fixtures and appliances, and monitoring water leaks.

Water Conservation Successes

- SHA piloted water conservation measures to encourage behavior change and to upgrade appliances among 11 households with higher-than-average water consumption. These measures led to a reduction in water consumption of at least 10 percent, and up to 37 percent when all measures were deployed.
- At **Lake City House**, **Phinney Terrace** and **Pleasant Valley Plaza**, toilets were replaced with low-flow, 0.8 gallon-per-flush toilets, leading to a 40 percent reduction in water use. SHA received \$10,000 in rebates from Seattle Public Utilities for this work. SHA has identified five additional buildings where such replacements can be done to continue reducing SHA's water consumption.

Average Annual Water Consumption



Average usage for domestic and irrigation water across all SHA owned and managed buildings stayed consistent throughout the reporting period.



Photo credit: Sozinho Imagery

Building Performance Highlight: Red Cedar

The 118-unit **Red Cedar** building was constructed with a variety of innovative building performance measures. A solar hot water preheat system decreases Red Cedar's energy consumption by reducing the conventional energy needed to heat water for tenant use. Energy Recovery Ventilators installed in each unit maintain indoor air quality by allowing fresh air into the building while retaining pre-conditioned heating or cooling. Porous pavement installments and stormwater detention systems prevent extra runoff to the surrounding environment.

3 Climate Resilience

Climate change poses environmental health risks to the communities SHA serves. SHA recognizes the importance of supporting community resilience to climate change. SHA is working to support climate adaptation by improving living environments and empowering communities through outreach and engagement.

Photo credit: Hannah Wilson, Black Farmers Collective



Gardening activities taking place at the YES Farm at Yesler.

Improving the Built Environment

- At Yesler Terrace, a 30-acre community undergoing redevelopment, green landscape features such as the Green Street Loop and Yesler Hill Climb were completed to provide space for physical activity, rest and relaxation, as well as social engagement and connections.
- Heat pumps were installed in community rooms at 11 **Seattle Senior Housing Program** buildings, providing cooling centers to senior and disabled residents who are particularly vulnerable to exhaustion during summer heat waves.
- Green certified cleaning products were successfully introduced at several buildings, reducing exposure to harmful indoor air pollutants.
- Bathroom exhaust fans were replaced at nearly 200 tenant bathrooms with fans running 24/7 increasing air flow to ensure adequate ventilation and prevent mold growth.



SHA staff celebrate the completion of a RainWise installation at Willis House in 2019.

Climate Resiliency Highlight

Willis House became SHA's first building to participate in **RainWise**, King County's green stormwater infrastructure rebate program.

The cisterns and rain gardens installed at Willis House manage 38,700 gallons of water annually, reducing stormwater runoff pollution and instances of combined sewer overflow. SHA received a \$27,000 rebate through King County's RainWise program in support of this work. This partnership between SHA and King County continues as the agency plans for additional RainWise projects.



Esri, NASA, NGA, USGS | City of Seattle, King County, WA State Parks GIS, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc., METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA

Resilience Planning

A heat island analysis highlighted that 70 percent of units in SHA buildings experienced temperatures of 86.6 degrees Fahrenheit or higher during the 2020 heat wave. SHA estimates that about 85 percent of SHA households are eligible for the federal Low Income Home Energy Assistance Program, providing funding to low-income households for heating and cooling costs and equipment. As extreme weather events become more common, this analysis will help SHA provide additional support for tenants during extreme heat events.

The green circles in the heat map indicate the relative size of SHA's buildings, illustrating where tenants are most vulnerable to high heat.

4 Sustainable Business Practices

Implementing sustainable business practices allows SHA to better allocate resources and serve SHA communities. Sustainable business practices streamline processes, conserve resources and increase efficiency. Examples at SHA include data-informed decision-making, reducing waste through composting, recycling and migrating to digital business processes—all of these minimize the agency's environmental impact.

Implementation Successes

- Migrated over 1 million pages of paper tenant files to digital files. SHA also developed e-forms and workflows to ensure future tenant files are 100 percent electronic, making tenant data more accessible.
- Formed a cross-departmental committee focused on identifying and prioritizing SHA's top three waste-related issues: illegal dumping, container overflow/capacity issues and litter control.
- Conducted over 95 waste audits to identify opportunities to reduce waste, determine the effectiveness of current waste management practices and identify the need for implementing new strategies and targeted outreach.
- Installed color-coded bins in 68 high-rise community rooms to promote waste-sorting and encourage residents to minimize their environmental impact.
- Achieved waste diversion rates of up to 90% on rehabilitation projects at **Lam Bow Apartments**, **Wisteria Court**, **Longfellow Creek**, and **Yesler Terrace**. With construction and demolition waste constituting one of the largest waste streams in the United States, proper diversion from landfill to a C&D material recovery facility significantly reduces land depletion, air pollution, and water pollution.
- Conserved water and saved over \$490,000 through the agency's leak detection program, which utilizes water and sewage bills to identify high water consumption and address leaks.



Example of waste sorting station at Yesler.



SHA's Solid Waste drivers discuss ways to improve waste management practices for curbside collection.



Conclusion

SHA demonstrates its commitment to environmental stewardship and sustainability through internal collaboration; local, regional, and national partnerships; and industry-wide leadership. In the coming years, SHA will continue to show how Public Housing Authorities can leverage support for their most vulnerable communities to realize a greener future.

For more information

To learn more about Environmental Stewardship at Seattle Housing Authority, please visit the website: seattlehousing.org