SMMUSD Fiscal Year 2023-24 Sustainability Report

Since the Districtwide Plan for Sustainability was approved in 2019, the District has met and continues to meet many of its key reduction targets across all focus areas, despite new construction and rising utility rates. The report below is intended to provide updates, highlight specific sustainability initiatives and note the progress made throughout FY 2023-24 as it relates to the Districtwide Plan for Sustainability.

Energy Efficiency + Renewables

Districtwide Energy Use for 2023-24

While total energy use (natural gas + electricity) was 14% higher than the 2017-18 baseline year, usage has steadily decreased since schools returned from the pandemic in the 2021-22 school year. However, District energy costs went up, mainly due to annual utility rate increases. The avoided costs since the return of schools in 2021-22 would have made overall utility expenditures through the end of the 2022-23 year approximately 36% higher. Weighing the projected financial impacts due to all utility rate increases since 2021-22 and the actual amount spent on all utilities, the District saved approximately $201,000 in avoided costs over the 2022-23 and 2023-24 school years. The District compares the last two years of utility costs to 2021-22 because that year schools returned to in-person learning and major new construction projects had finished. Thus, 2021-22 became a new baseline of comparison for the following years.

- **Total energy use (natural gas + electricity) was 14% higher compared to the 2017-18 baseline year.**
- **Total energy use has dropped 7% since schools returned from the pandemic in 2021-22.**
- **2023-24 was the lowest energy use year since schools returned from the pandemic in 2021.**
  (Note: Major construction finished and occupancy occurred for two new buildings in 2021 – the Malibu Middle/High School A/B building and Samohi Discovery building)

- **Electricity use increased by 5% compared to the baseline year.**
- **Electricity use decreased 2% from prior year 2022-23, but the total cost was 6% greater due to annual utility rate increases.**

- **Natural gas use dropped 12% and the total cost was 43% lower than prior year 2022-23.**
- **Natural gas use was 27% higher compared to the baseline year.**

- **Since March 15, 2023 SMMUSD continues to receive 100% of its electricity from renewable sources through the Clean Power Alliance.**

The 2020 Sustainability Plan goal to reduce energy use by 20% compared to the 2017-18 baseline was achieved in FY 2020-21. While 2023-24 saw a 14% higher energy use compared to the baseline,

efforts to reach the 2025 Sustainability Plan goal of a 25% reduction in energy use are ongoing. These efforts include strategic scheduling and operational facility shutdowns for lights and Heating, Ventilation, and Air Conditioning (HVAC) systems, planning for future rooftop solar systems, and facility improvements such as HVAC building control upgrades.

The greater-than-baseline energy use in FY 2023-24 was anticipated for several reasons. Major construction projects were underway during the year, including the Samohi Exploration and Gold Gym buildings, the Malibu New High School building, and the Will Rogers Early Education building projects. These projects use gas and electricity throughout the course of the work. The Samohi Discovery building (the District's largest) faced ongoing maintenance issues with its HVAC system, making strategic energy management strategies difficult to implement. Also, in FY 2021-22, air conditioning systems were installed across five schools that previously only had heating. This resulted in a large additional energy load to be able to operate the new AC systems. All of these factored into the total energy use being higher than baseline for FY 2023-24.

[See Exhibits A, B, C and D for utility use and cost figures]

Solar Energy

- **18% of total District electricity was generated by rooftop solar photovoltaic systems across 9 sites.**

- **% of school electricity powered by rooftop solar:**
  - **Webster – 90%**
  - **Roosevelt – 62%**
  - **Grant – 57%**
  - **Franklin – 51%**
  - **Malibu Elementary – 50%**
  - **Will Rogers – 46%**
  - **McKinley – 13% (smaller system size)**
  - **Malibu Middle/High – 12% (large campus with 1 rooftop solar system)**
  - **Samohi – 10% (large campus with 2 rooftop solar systems)**

The District receives solar generated energy from rooftop systems at 7 elementary schools, Samohi's Innovation and Discovery buildings, and the Malibu Middle/High School A/B building.

Two additional rooftop solar systems are planned to be brought online in the 2024-25 school year. The solar system on Samohi's new Exploration building has been installed and is awaiting final approval to operate from SoCal Edison (SCE). The Malibu New HS building is under construction and is slated to open late in 2024. Approval to get the system operating will happen sometime in 2025 based on SCE's ability to move it forward. The District is anticipated to meet the Sustainability Plan goal of generating 30% of the District's electrical need from solar by 2025. These future systems will increase onsite solar energy production, improve the District's energy resilience, offset peak demand billing charges and reduce the District's greenhouse gas emissions.

SMMUSD Celebrates Switch to 100% Clean Power

On May 1, 2024, SMMUSD was celebrated for its decision to source 100% renewable energy from Clean Power Alliance (CPA). CPA is a local alternative energy provider that offers various levels of renewable energy rates to SoCal Edison customers. District leadership, community members, Samohi students, and representatives from the City of Santa Monica and CPA came together to recognize that all SMMUSD electricity services were officially powered by 100% renewable sources. Back in March of 2023, the School Board of Education gave a unanimous approval to SMMUSD to transition its sourcing of electricity to 100% renewable energy sources.

The District enrolled in CPA's Green Leader program in May of 2024, which recognizes SMMUSD for its environmental leadership. This transition has significantly lowered the District's carbon footprint; the District will continue to move towards a carbon neutral future with the addition of more rooftop solar, zero-net energy buildings and the shift away from natural gas in our facilities.

Photos: May 2024 celebration

Water

- **2023-24 Districtwide total water usage was 32% lower than the 2017-18 baseline year.**
- **2023-24 Districtwide total water costs were 23% lower than the baseline year.**
- **2023-24 Districtwide total water costs were $147,206 lower than the baseline year.**

The District is on track to meet the 2025 Sustainability Plan goal to reduce water consumption by 20% compared to the 2017-18 baseline. The 2023-24 school year was the second lowest water using year on record since the District baseline was established and tracking began in 2017-18. The District used 32% less water compared to the baseline year. This decrease can be attributed to the ongoing water conservation efforts such as the implementation of smart irrigation control systems, low-flow and water-efficient plumbing fixtures and extensive utility bill monitoring. The District continues to incorporate drought-tolerant landscaping into the design of all new construction projects. The wet winter season of 2023-24 that California experienced also allowed the District to hold back on using water for landscape irrigation. Based on water audits from 2017, 80% of District water is used for landscape irrigation. An artificial turf field was installed at Will Rogers during the summer of 2024 which will dramatically reduce the water previously used to irrigate the grass field.

[See Exhibits E & F for water cost and usage figures]

California Schools Healthy Air, Plumbing, and Efficiency Ventilation (CalSHAPE) Program

In the fall of 2023, the District applied for the CalSHAPE Ventilation Grant program and was awarded $1,610,520.00 in grant funds through the program for all school sites. Ventilation grant funds awarded to the District were part of the program's Phase 1, which targeted HVAC Assessment and Maintenance (A&M). The funds covered Districtwide HVAC equipment assessments, CO2 monitor installations, filter replacements, and general maintenance. The A&M grant included a 20 percent contingency fund which was used for general repairs, coil cleaning, and upgrades necessary to make District HVAC systems functional or more energy-efficient.

Program Highlights

- Districtwide classroom HVAC systems were assessed and tested; 81.8% of the facilities were returned to using MERV 13-rated filters which provide better filtration of indoor air quality (IAQ).
    - It was determined through the assessments that 18.2% of systems can't support MERV 13 filters and received the highest level of filtration appropriate.
- Over 150 new smart thermostats were installed, which means approximately 90% of classrooms Districtwide have smart thermostats.
    - Smart thermostats allow District staff to remotely monitor and control HVAC systems, which allows us to save energy and improve sustainability and IAQ.
    - All smart thermostats include built-in carbon dioxide (CO2) sensors.
- Over 100 standalone carbon dioxide CO2 monitors were installed.
    - CO2 monitors not only communicate the level of CO2 in the room but they're also a diagnostic tool to determine appropriate air flow. Elevated levels of CO2 are known to reduce attention and engagement among students and staff. Improved air flow reduces the potential spread of airborne diseases, including COVID-19.
- Other HVAC system improvements were done including coil cleaning, non-disposable filter washing and additional unit assessments initially not counted in the grant.
- These upgrades and improvements enhance maintenance staff's ability to maintain and repair the HVAC systems, and allows equipment to run more efficiently which saves energy and operating costs.

Based on the State budget, the California Energy Commission (CEC) has suspended the CalSHAPE program. However, the District has submitted all necessary reports and documentation in the hope that the CalSHAPE program is renewed and we can receive additional grant funding.

Transportation

Metro GoPass TAP Card Program

Year 3 of the Program: 2023-24 Highlights

- **2,607 student card registrations (31% of all SMMUSD K-12 students)**
- **178,844 boardings (14% increase from previous year 2022-23)**

Year 3 of the Metro GoPass TAP card program ended with about 31% of all K-12 students having registered a card. Metro recorded 178,844 boardings across the various participating transit agencies, which was a 14% increase from the previous year boardings in 2022-23. SMMUSD sustainability staff and Metro staff held an informational booth at Samohi registration in August 2023 to help get students registered. The District paid a total of $61,740.00 to enroll in the program and provide TAP cards to all K-12 students for its third year.

Students continue to benefit from 24/7 unlimited transit rides through this year long program. When students opt for public transportation instead of family cars it contributes to healthier local air quality and relief of traffic congestion around SMMUSD schools. The program will run again for a fourth year in the 2024-25 school year. Metro has extended the program permanently, though it will remain a District decision to re-enroll each year.

Photo: Sustainability staff and Metro staff at Samohi registration (August 2023)

Photo: A Samohi student completes the TAP card registration process

Bike It! Walk It! Bus It! - October 2023 and May 2024 (Sustainable Transportation)

Grant Elementary won the October 2023 Bike It! Walk It! Bus It! competition and took home the Golden Sneaker Trophy with 87% student participation! 8 schools and 2,530 students participated in the October event. In May 2024, Franklin Elementary won the event with a student participation percentage of 88%. 9 schools and 2,646 students participated in the May event. Each school was awarded a school wide ice cream party funded by the District along with the Golden Sneaker trophy. Bike It! Walk It! Bus It! is a biannual, Districtwide initiative promoting the use of alternative, sustainable modes of transportation to get to and from school and encourages students to use their Metro GoPass TAP card for free public transit rides throughout the year.

Bike It! Walk It! Bus It! October 2023 – Grant Elementary

Bike It! Walk It! Bus It! May 2024 – Franklin Elementary

Green School Operations

School Gardens & Outdoor Learning Spaces

As part of our educational goals in the Sustainability plan, the Sustainability department supports the development and operations of school gardens and outdoor learning spaces. The District

opened the Samohi Exploration and Gold Gym buildings, the design of which exceeded +25% of the California High Performance Schools (CHPS) criteria. For all District construction projects the maximum amount of construction and demolition material is separated to the appropriate waste stream, ensuring the minimum amount goes to the landfill. The McKinley and Will Rogers building projects are under construction and are also designed to meet CHPS +25%.

Malibu Elementary School

Malibu Elementary school (MES) put their hydroponic grow towers to use this year. Students successfully grew and harvested produce that was incorporated into the school cafeteria lunch menu. With this hydroponic equipment, MES has created a unique learning opportunity for its students.

Photos: Fall 2023

John Adams Middle School

In fall of 2023, District sustainability staff and maintenance staff upgraded the existing raised garden beds at John Adams Middle school (JAMS). Fresh organic compost was added to the beds as well. The increased height of the raised bed sidewalls provided students and staff greater ease of gardening and more protection to the plants.

A new garden compost system was procured by the District, and compost education lessons were conducted with JAMS science classes. Full Circle Compost, a local environmental education services organization, brought cafeteria staff, teachers and students together to teach about proper composting methods.

Photos: Raised bed upgrades, fall 2023

Photos: Compost system education, spring 2024

Will Rogers Regenerative Farm

The Will Rogers Regenerative Farm continued their comprehensive, school-wide food waste composting system and showcased the finished product (fresh compost) at their annual Fall Festival. The school continued working with Full Circle Compost, a local garden education organization, on this initiative with their three compost systems. Students sort food waste from their own lunches and from the school cafeteria to be turned into usable soil through the farm compost system. Students continue to receive hands-on learning opportunities in this unique outdoor learning space that tie into NGSS topics such as biodiversity, food systems, composting, and nutrition. (Photos: Rogers Fall Festival, Oct 2023)

Samohi Discovery Building Rooftop Garden – Hydroponics & Aquaponics

- **Aquaponics system mechanics were taught to Samohi students by industry professionals.**
- **Students assembled wall-mounted and ground-level aquaponics systems.**
- **Three hydroponics tower garden systems were assembled and utilized to grow produce.**

Following the Board approval of the Samohi Rooftop garden plan for aquaponics and hydroponics in 2022, Samohi students assembled three hydroponic tower gardens and successfully grew their own produce. In the winter and spring of FY 2023-24, students worked with industry professionals from Cal State Long Beach and Get Inspired, Inc. to assemble two different aquaponics systems. One system is a vertical, wall-mounted living wall and the other is a nutrient film technique of growing plants in trays.

These systems rely on the continuous cycling of water, as well as the use of fish to provide nutrients to that water to grow plants. Students have tapped into various STEM aspects to successfully assemble these systems and grow plants sustainably, without the use of soil. These are unique and innovative project-based learning opportunities. Fish are expected to be introduced to the aquaponics tanks in the 2024-25 school year.

Photo: Samohi students learn about aquaponics from industry professionals.

Photos: Aquaponics systems are assembled by students under the guidance of professional consultants.

Solid Waste

Districtwide Electronic Waste (e-waste)

Highlights

- **9,136 lbs. of e-waste were donated and diverted from the landfill in 2023-24.**
- **SMMUSD continues to divert 100% of all electronic waste from landfills.**

During the 2023-24 school year, 9,136 pounds of e-waste was collected across all District sites and donated. Human-I-T, the District's nonprofit e-waste partner, restores technology products to be used by low-income individuals or nonprofits and responsibly recycles end-of-life items. SMMUSD continues to divert 100% of all electronic waste from landfills. E-waste items include laptops, desktop monitors, printers, copiers, headphones, and more. Diverting e-waste from landfills is a District best practice because the heavy metals and toxic chemicals found in these items are harmful to the atmosphere, groundwater, and human health when not responsibly managed. Recycling e-waste also adds to avoided greenhouse gas emissions that would have come from the manufacturing of new devices. Some e-waste that was still functional or valuable was publically auctioned off. The funds from the auctioned e-waste returned to the revolving green fund, a District sustainability fund.

Photos: School e-waste and Human-I-T staff loading their truck

Solid Waste Management & Samohi Case Study

The District continues to monitor the existing contract with solid waste hauler American Reclamation and will ensure that their services are meeting District operations and sustainability standards. District sustainability staff and students from the Samohi Team Marine environmental club continued conducting waste audits during the 2023-24 school year in an effort to gauge the efficacy of waste sorting among Samohi students and staff. Bags from campus waste bins were sampled out of the

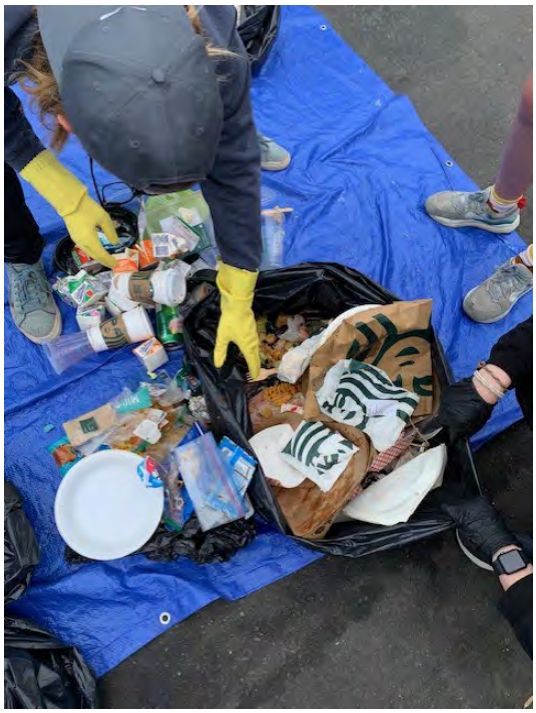
landfill and recycling dumpsters, and the contents were sorted into the three major waste categories: landfill, recycling, and organics.

Samohi Waste Audits Highlights:

- **Average contamination in recycling dumpsters was 51%.**
    - **Over half of the materials documented in the recycling dumpster were not recyclable.**
- **Average contamination in landfill dumpsters was 68%.**
    - **68% of the waste in the landfill dumpsters could have been recycled or composted.**
- **There is a lack of education and waste sorting among custodial staff, teachers and students.**

These findings were presented to the Samohi custodial supervisor by the Team Marine students. Open discussions about fixing the waste system and decreasing contamination rates were had among sustainability staff, Samohi staff, students and two custodial staff. Samohi is the largest site in the District and serves as an indicator for the issues existing in the larger District waste management system.

The 2025 Sustainability Plan goal is to increase diversion from landfill to 60%. To achieve this, recycling rates and organics recycling rates must increase across all District sites. Custodial staff must adhere to waste sorting guidelines set out by the state of California. Custodial staff, faculty and students throughout the District must be educated on proper waste sorting. More audits will take place in the 2024-25 school year at various schools, along with educational presentations to students and custodial staff across the District.



Photos: June 2023 waste audit

Photos: November 2023 waste audit and presentation to Samohi custodial management

Education & Engagement

EcoHero Educational Shows

The City of Santa Monica provided funding for exciting, sustainability-themed presentations to SMMUSD Santa Monica schools via the EcoHero Show. These interactive presentations covered anti-littering, bottle and can messaging, organics recycling and food waste reduction topics. The EcoHero show was made available to all Santa Monica grades K-6, and they performed at several schools during fall and winter of 2023.

The EcoHero show combines hip-hop and sustainability to create an engaging, fun and interactive learning experience. Since 2015, the EcoHero show has performed for schools around the globe, with the philosophy that every kid can change the world. Through their program, they introduce students to sustainability issues and how they can get involved. Performers teach dances or call & responses to each of their music videos. Between songs, various topics are discussed through storytelling & trivia to illustrate how students can have an impact on their ecosystem at home and at school.

Photos: EcoHero show performing at Franklin Elementary in fall of 2023

Climate Literacy Initiative – New SMMUSD Board Policy and Resolution

On November 2nd 2023, the Board of Education approved a Climate Literacy Resolution and subsequently a new Board Policy (6142.5 – Environmental Education) which calls for the implementation of standards with learning experiences focusing on climate/environmental literacy and sustainability in Grades TK-12. The SMMUSD Sustainability Steering Committee and Samohi Team Marine students presented to the Board of Education on the resolution and board policy, advocating to get these officially adopted. This fulfilled a Sustainability Plan goal for Education and Engagement which formalized the District's commitment to sustainability and environmental justice education.

The Sustainability Steering Committee developed and introduced the District's first Climate Literacy Resource Hub. The hub is an online site providing grade and subject-specific learning resources for teachers to use in their classrooms and is focused on a variety of climate-literacy and sustainability topics. Examples of resources include classroom activities, lessons, educational videos and podcasts, field trip opportunities, free educational speakers and more. The hub also provides Professional Development resources for teachers and staff to help facilitate the integration of climate-related topics throughout disciplines. The Climate Literacy Resource Hub is accessible on the District Sustainability webpage and in the Staff Portal.

As stated in the SMMUSD Board-approved Climate Literacy Resolution, TK-12 teachers are strongly encouraged to commit to at least 2 climate-related learning experiences per year with their classes and are granted discretion over these lessons. The Sustainability Steering Committee and Samohi Team Marine students are developing metrics to gauge the effectiveness of the resolution and policy. The goal is to track and report on the quantity of teachers who implement climate literacy lessons in their classes each semester.

Conclusion

SMMUSD continues its commitment to educating the next generation of environmental stewards and engraining sustainability into all District operations. The 2019 Districtwide Plan for Sustainability sets forth ambitious goals for the District to meet. Despite the large volume of new construction and additions to District facilities, many goals outlined in the plan have been reached. The goals and milestones in the plan were established without accounting for the large construction and modernization projects slated to take place in the immediate years following 2019. These major changes to District facilities have ultimately increased building energy demands, but mitigation efforts are ongoing.

There is more work to be done across all sites and District staff will continue efforts to advance sustainable operations, practices, and sustainability education. As we complete the 5th year of the Sustainability Plan, it is likely time to reassess and renew the plan for another 5 to 10 years given the major facilities changes over the last several years.

Please email Austin Toyama, SMMUSD Sustainability Manager, at atoyama@smmusd.org with any questions.

Exhibit A

Annual Districtwide Electricity Use (kWh)

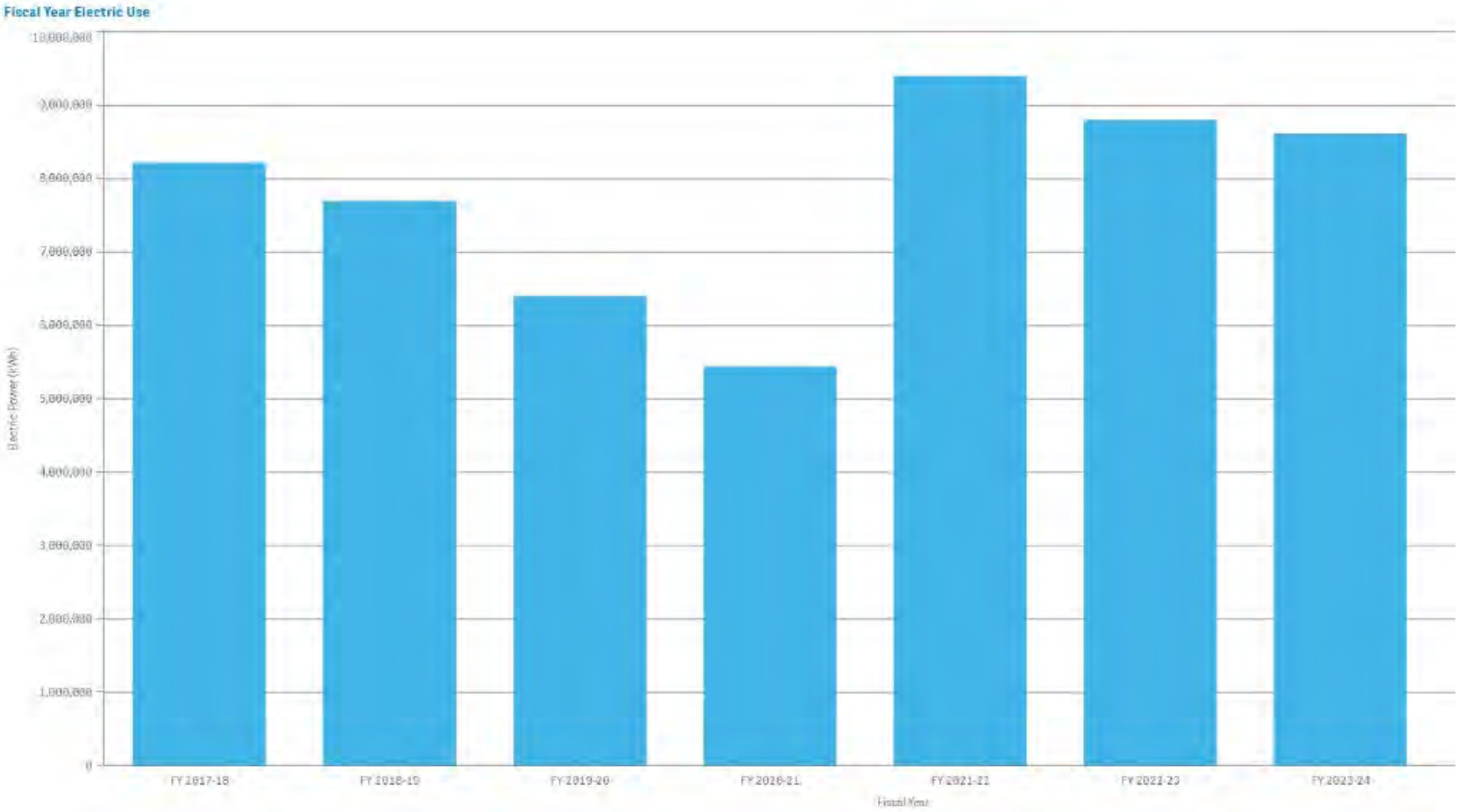


Exhibit B

Electricity Cost and Use Summary

Note: Electricity costs continue to rise while usage drops.

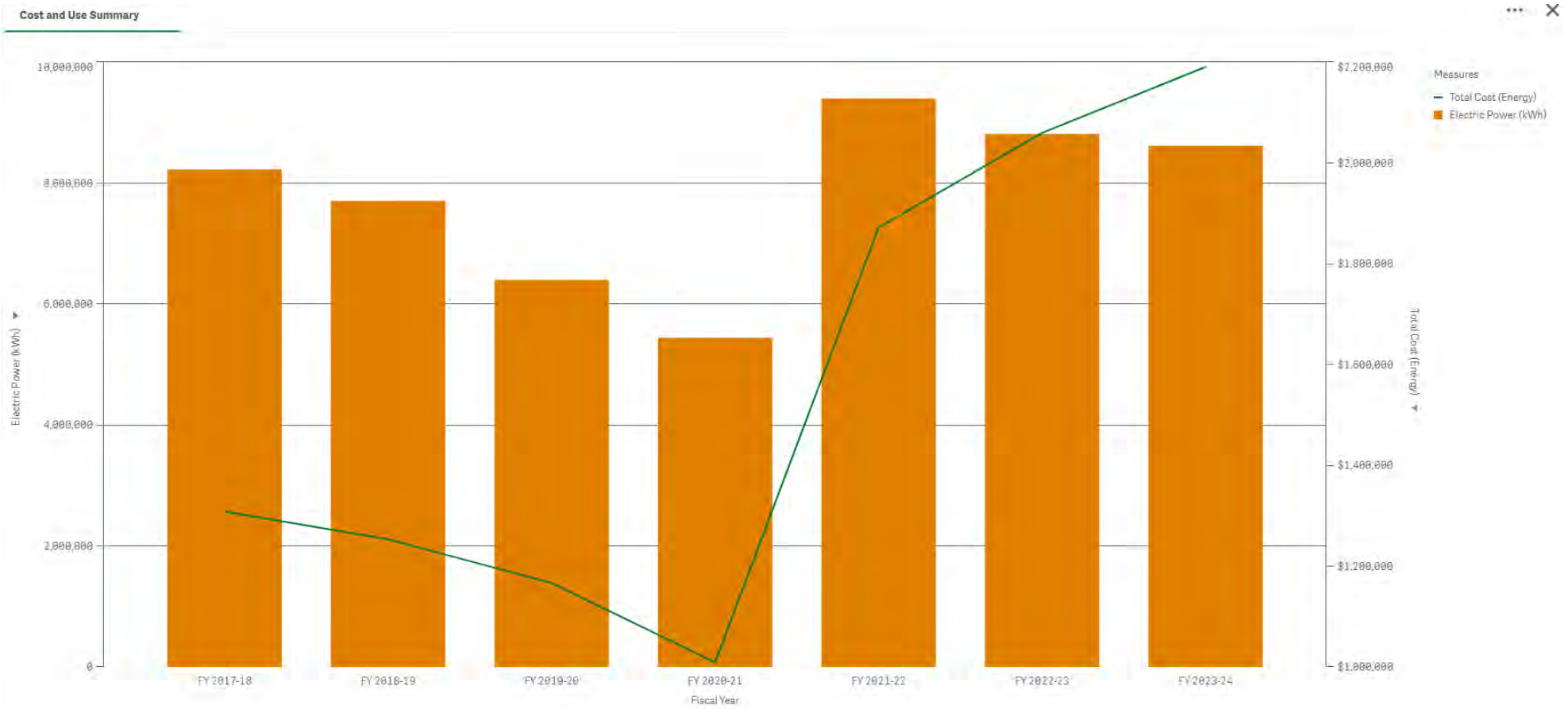


Exhibit C

Annual Districtwide Gas Use (Therms)

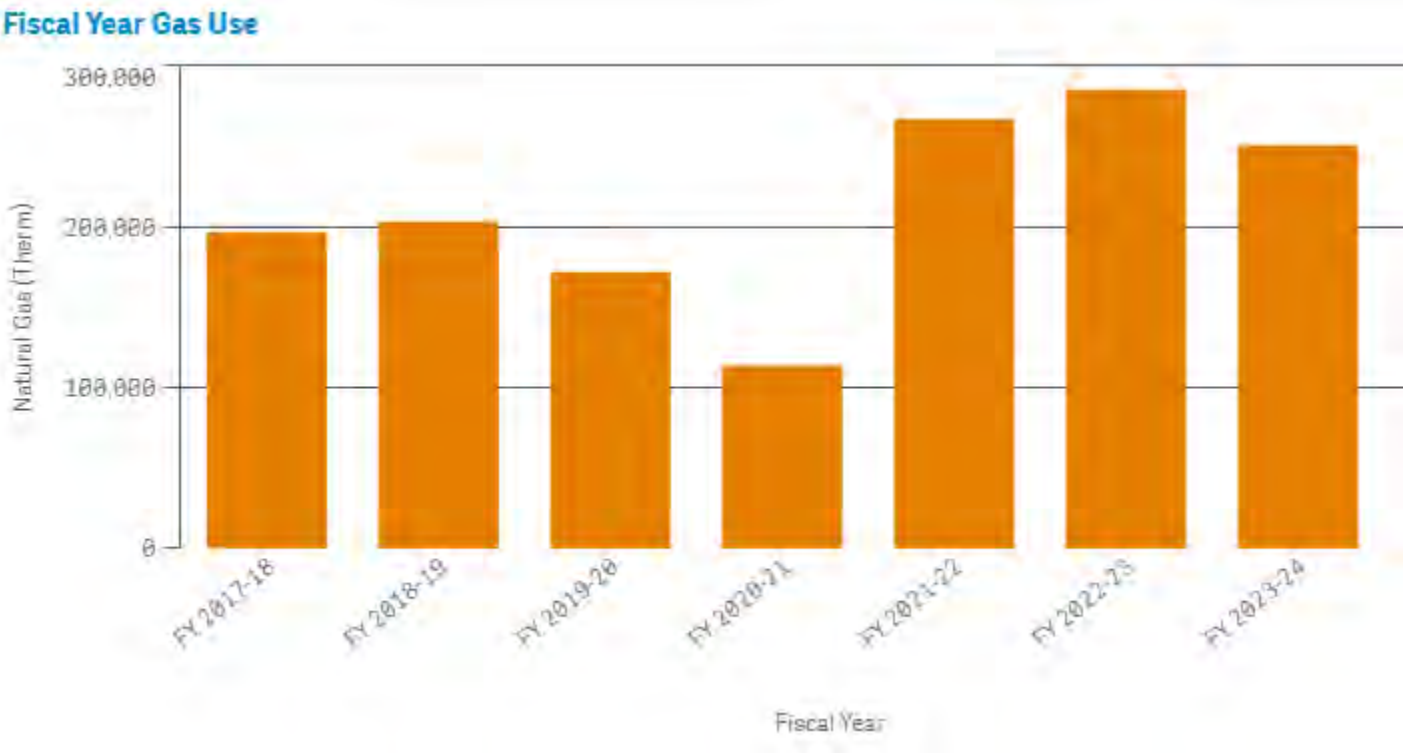


Exhibit D – Annual Districtwide Utility Costs

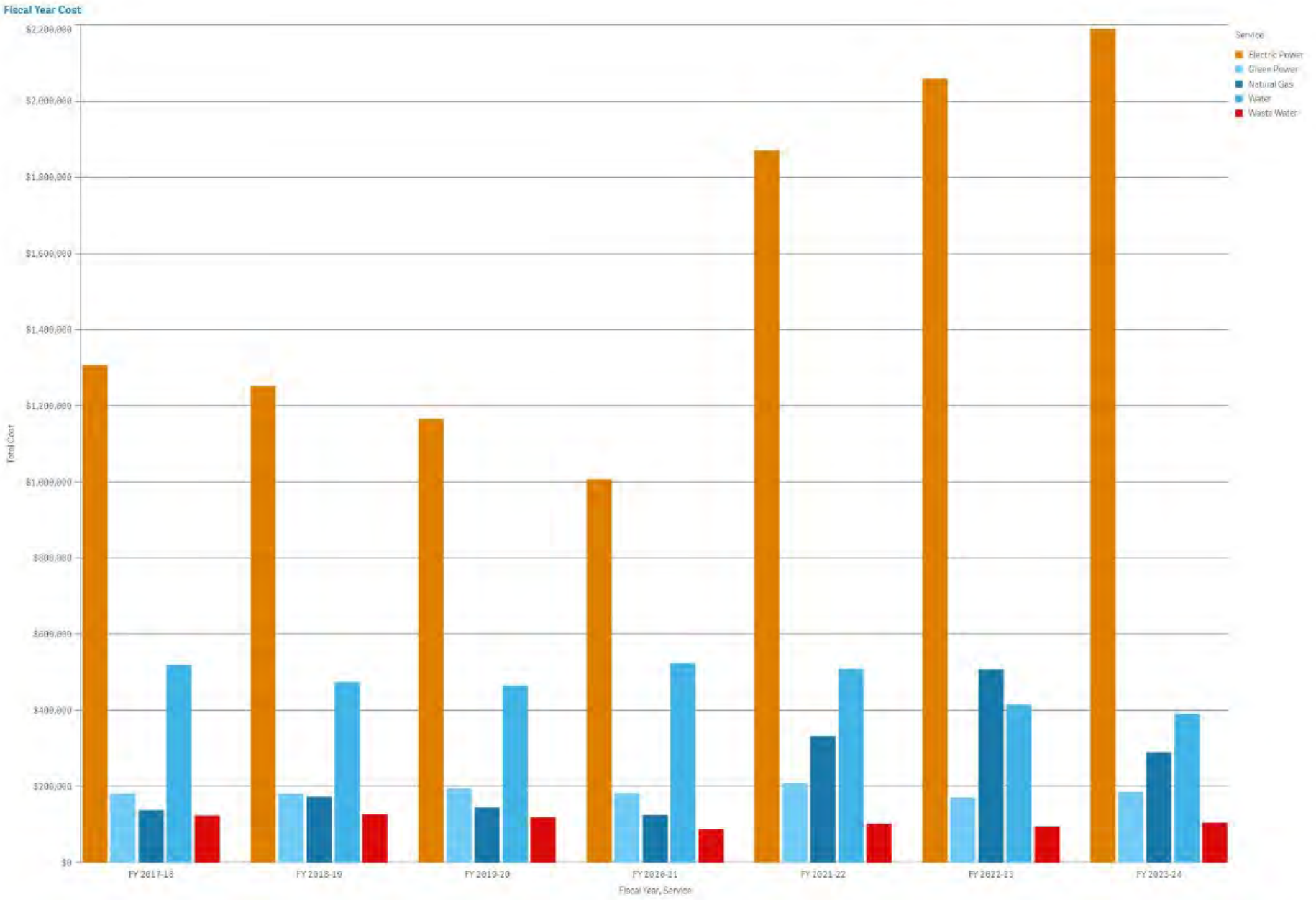


Exhibit E

Annual Districtwide Water Cost and Use Summary

Note: While water use increased slightly from 2022-23, water costs are down.

Exhibit F

Annual Districtwide Wastewater (sewer) Cost and Use Summary

Note: While waste water increased slightly from 2022-23, cost and usage are still better than baseline (2017-18).