




EQAC 2023 Presentation




Greenhouse Gas Emissions for Calendar 2022 FCPS has made significant progress in reducing greenhouse gas emissions over the years. Some highlights for calendar year 2022 are:

In 2022, FCPS increased Greenhouse Gas emissions by 3,522 metric tons of CO₂e compared to the previous year (2021). Although there was an increase of 2% in GHG emissions from 2021-2022, it's important to note that this is a relatively small increase considering the overall trend. FCPS achieved a reduction of over 38% in GHG emissions compared to the baseline year of 2008, and demonstrates a proactive approach to mitigating climate change.

GHG emissions decreased from 2019 to 2021 continuing the overall trend for the thirteen years since the first inventory was started for calendar year 2008. From 2008 to 2021 GHG emissions have decreased 39%. This overall decrease has occurred even though the number of students, the total square footage of buildings, and the number of school buses has continued to increase.

FCPS annual Greenhouse Gas Inventory Report Link: <https://www.fcps.edu/sites/default/files/media/pdf/Greenhouse-Gas-Inventory-Report-Calendar-FCPS>



FCPS had over 28 million square feet of building space where utilities were paid and controlled by FCPS. Leased building spaces where utilities are included in the rent are included in this inventory.

The number of students in FCPS increased to 180,130.


262 million kWh of electricity were used for lighting, heating and air conditioning, kitchen equipment, and plug loads such as computers, televisions, smart boards, and vending machines. This is an increase of 12 million kWh of electricity or 4% from 2021, but an overall decrease in electricity usage of 18% since 2008, which is a positive trend indicating improved energy efficiency and conservation efforts.

5.3 million therms of natural gas were used for heating, domestic hot water, kitchen equipment, and emergency power generation. Despite the increase of .6 million therms from the 2021 consumption, there has been an overall decrease of 25% in natural gas consumption since 2008.

FCPS had 2,473 vehicles in 2022 that consumed fuel, including 1,607 buses and 127 cars, 723 trucks, and 16 non-road vehicles.

FCPS school buses traveled 15,894,699 miles which is an increase of 4,084,239 miles traveled in 2021, and a decrease of 5,408,615 miles or 31% traveled in 2019.

FCPS school buses used 2,414,944 gallons of diesel fuel in 2022.



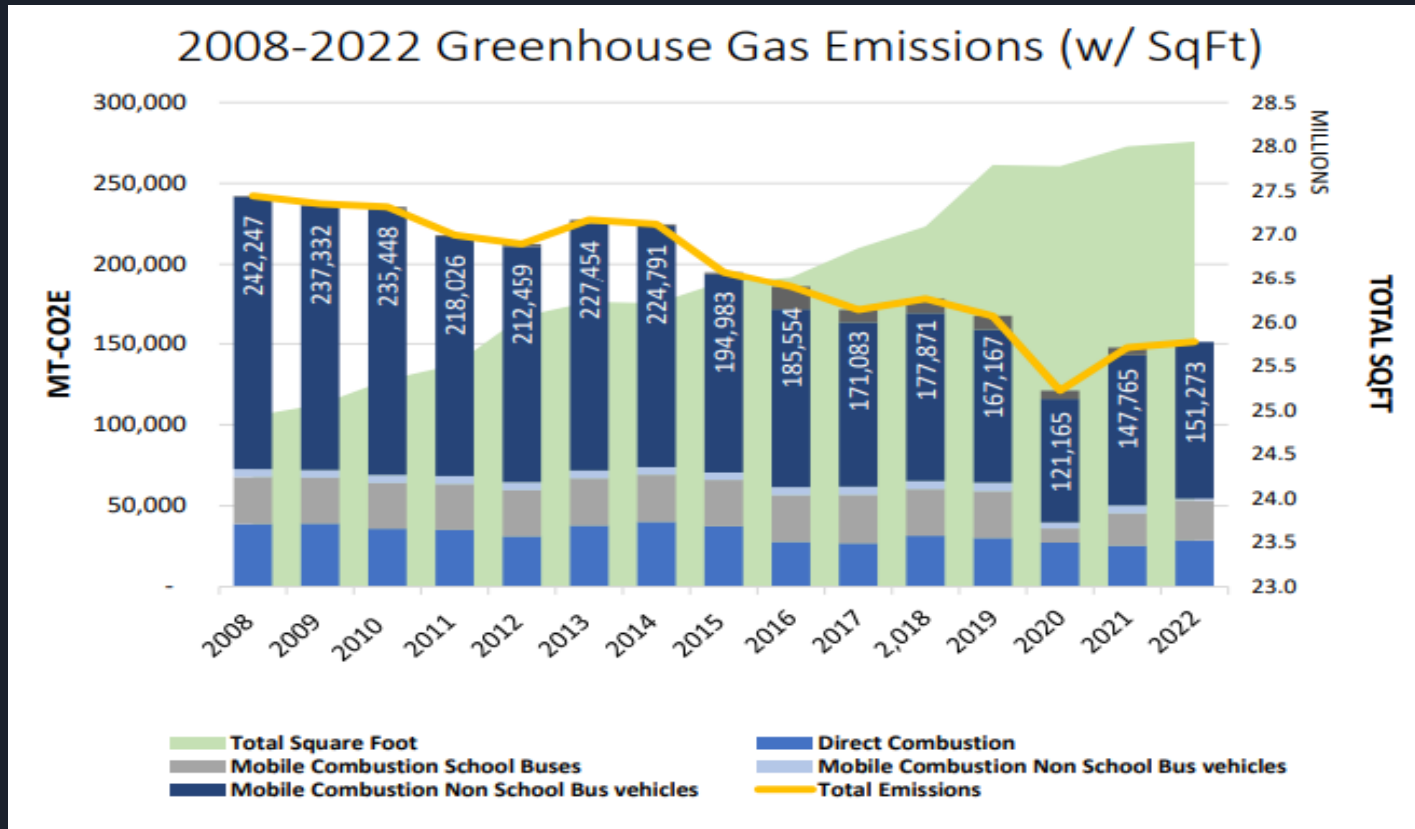
FCPS Grounds Operations department continues to replace gasoline powered equipment with diesel powered equipment adhering to EPA's Tier 4 (T4) emission standard when equipment is due for replacement. We fully expect to have over 50 blowers in operation within a year, and that number will increase as the machinery finishes its useful life cycle. OFM grounds plans to continue replacing gasoline powered hedge clippers to battery powered as they end their useful life cycle.

FCPS achieved a reduction of 37% in GHG emissions between 2008 and 2022. To visualize the environmental impact of the reduction, this reduction of 90,975 metric tons of CO₂e is equivalent to the GHG emissions from the electricity use of 17,701 homes for one year or GHG emissions avoided by recycling 31,479 tons of waste instead of sending it to landfills.

The reforestation of areas on school sites helps mitigate stormwater runoff by absorbing water. Drought-resistant trees and plants native to this region are used because they are suited for this climate and do not require irrigation. The trees absorb carbon dioxide and assist with improved air quality around the schools. Over 1,500 trees and over 4,100 shrubs were planted by FCPS in the past two years. With few exceptions, only native and non-toxic fruit bearing vegetation was planted. No invasive species were planted, and in most cases, existing invasive species are removed using procedures prescribed by Fairfax County's Urban Forest Management Department.

Fugitive refrigerant emissions have been removed from GHG reports for FCPS. This was done because it was determined that this data has not been collected in a meaningful way and FCPS does not have a process in place for accurate collection of this type of data. Historical reports will remain as previously published, however the chart below and all data in this report reflect

It's important for FCPS to continue efforts to reduce GHG emissions, as these reductions are crucial in addressing the global issue of climate change and contributing to a more sustainable future.





Solar Installations

FCPS currently has ten schools with solar installations. Roof-mounted photovoltaic solar arrays paid for through grants and fundraising can be found at Rachel Carson Middle School, Frost Middle School, Canterbury Woods Elementary, Bailey's Elementary School, and Thomas Jefferson High School. Roof-mounted solar installations for solar thermal heating of potable (drinkable) water can be found at Glasgow Middle School, West Springfield High School, and Thomas Jefferson High School. Franklin Sherman Elementary has a ground-mounted photovoltaic array. Experimental instructional projects integrating technology include a solar powered wind turbine at Lanier Middle School and a chicken coop with solar panel heat at Twain Middle School. Although these projects do not supply large amounts of energy to the schools, they serve as valuable educational tools. This year, Riverside ES and Jackson MS were selected for the Dominion Energy Solar for Students program. Centreville ES won the award in 2019.

FCPS is using Solar Power Purchase Agreements to install solar on Annandale HS and Mason Crest ES. FCPS remains committed to completing these projects as proof of concept study to understand the design/planning, interconnectivity, installation, and operational requirements for rooftop solar. Dominion Energy is requiring additional connectivity measures which will increase cost for installation of interconnection, FCPS is working with vendors to finalize this process.



Geothermal Energy

Geothermal Energy in FCPS Mason Crest ES, a repurposed administrative building, uses geothermal energy for heating and cooling. This geothermal system consists of a well field located under the ball fields near the playground. The geothermal system moves heat from the earth into the building in the winter and pulls heat from the building and discharges it into the ground in the summer. Net Zero Energy (NZE) building designs utilize geothermal systems; as NZE buildings are planned and designed, the number of geothermal systems will increase across the division.



Thanks!

