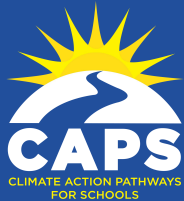


# 2024 CAPS Report

## Morgan Hill Unified School District

Created by 2024 CAPS Interns



# CAPS

## Buildings Decarbonization



# CAPS

# Buildings Decarbonization

## Objective 1

**Identify for each site across MHUSD the energy consumption in order to signal potential areas and actions for improvements that will translate into reduced greenhouse gas emissions and savings for MHUSD**

## Phases of Work Conducted

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1. Compiled and organized the electricity usage for the 2022-23 fiscal year.
2. Calculated the electricity cost for selected MHUSD site.
3. Identified sites with highest and lowest consumption of electricity.
4. Determined the electricity consumption performance for selected MHUSD sites.
5. Conducted a level 1 ASHARE energy audit at Live Oak High School.
6. Generated recommendations for improving energy consumption across MHUSD.

# Buildings Decarbonization

## Summary

- **Data challenges**
  - We lacked a complete electricity data set for 9 school sites for 2022-2023 so we focused on **11 sites (out of 20)**.
  - Natural gas consumption data was incomplete for all 20 sites and thus we could not conduct an analysis on this consumption.
- **Cost for electricity consumption** during 2022-23 include:

Site Name	Period	Cost \$	Electricity Usage kWh
Paradise Valley	August 22-June 23	68,914.31	339,488.55
Walsh	July 22-June 23	108,701.06	518,114.40
Barrett	June 22-May 23	48,295.81	367,135.8
Sobrato	June 22-May 23	314,196.77	2,092,463.80
Central	June 22-May 23	16,031.305	90,393.56
District Office	June 22-May 23	42,304.44	32,5235.88
Jackson Academy	June 22-May 23	54,810.27	298,840.10
Britton	June 22-May 23	25,672.93	166,481
Martin Murphy	June 22-May 23	55,087.69	300,770.4285
Live Oak	June 22-May 23	6,730.895	38,219.56
Los Paseos	June 22-May 23	47,139.68	23,0061.80

# Buildings Decarbonization

## Electricity Consumption Performance



LOW PERFORMANCE	
Electricity EUI to CA benchmark (%)	
Live Oak	275
Ann Sobrato	48
Walsh	55
Paradise Valley	10
HIGH PERFORMANCE	
Electricity EUI to CA benchmark (%)	
Central Continuation	-64
Martin Murphy	-42
Los Paseos	-34
AVERAGE PERFORMANCE	
Electricity EUI to CA benchmark (%)	
District Office	7
Jackson Academy	2
Barrett	6

# Buildings Decarbonization

## CO2 Emissions

Site Name	Electricity Consumed (kWh)	Emissions from kWh Consumed (MTCO <sub>2</sub> e)
Ann Sobrato High School	2,092,463.80	872
Central Continuation School	90,393.56	37.7
Live Oak High School	38,219.56	15.9
P.A. Walsh Steam Academy	518,114.40	216
Paradise Valley Engineering Academy	339,488.55	142
Jackson Academy of Math & Music	298,840.10	125
Los Paseos Elementary	230,061.8	95.9
Martin Murphy Middle School	300,770.43	125
District Office	325,235.88	136

# Buildings Decarbonization

**REDUCE** ↓  
**GREENHOUSE GAS  
EMISSIONS**

## P. Walsh Steam Academy

Metric Tons of CO<sup>2</sup>e from electricity= **216**



51.4 gasoline-powered passenger vehicles driven for one year



42.6 homes' electricity for one year

## Ann Sobrato High School

Metric Tons of CO<sup>2</sup>e from electricity= **872**



208 gasoline-powered passenger vehicles driven for one year



114 homes' energy use for one year

## Paradise Valley Academy of Engineering

Metric Tons of CO<sup>2</sup>e from electricity= **142**



33.7 gasoline-powered passenger vehicles driven for one year



27.9 homes' electricity for one year

# Buildings Decarbonization Recommendations

## 1. Infrastructural

- a. School site temperature control (proposed) vs central control for temperature (current)
  - Teachers have unique behaviors and needs during specific classes and activities
  - Temperature is not always aligned with the outside weather conditions
  - Lights should serve teachers based on their schedules and needs
- b. Controls for lights in outside spaces during after school hours
- c. Teachers' needs should be translated into strategic physical spaces and resource
- d. Increase natural light
  - More windows in classrooms
  - Enable use of existing windows
- e. Increase green coverage and introduce more native plants
  - Students will appreciate seeing from their classrooms green rather than built environments
  - Helps to cool down
  - Creates an enjoyable campus

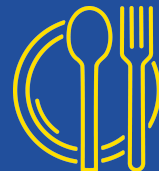
# Buildings Decarbonization Recommendations

## 2. Behavioral and Educational:

- a. Assess energy saving and energy consuming behaviors at each school
- b. Make energy consumption data accessible for teachers to integrate in learning activities
- c. Provide energy consumption education to teachers and students to motivate behavioral changes
  - Provide foundational information on fossil fuel sourced energy and connections to climate change
  - Have regular check ins with teachers
  - Present staff practices that can be counterproductive to lower energy consumption and other sustainability practices
- d. Mandates to support smart energy practices and behaviors across schools
  - Consider teachers' challenges and needs
- e. Share successes of different schools to promote a sense of a collective action to lower energy consumption across the entire district

# CAPS

## Climate Actions



# Climate Actions

## Objective 2

**Assess current efforts by MHUSD in 5 key areas: buildings decarbonization, food, water, waste, and transportation and identify local organizations that can become partners to advance sustainability in each area**

## Phases of Work Conducted

1. Researched the work done and interviewed the directors of Transportation, Grounds and Maintenance, and Student Nutrition Services.
2. Identified the infrastructural goals, and challenges and needs to reach these goals, set by these departments.
3. Researched organizations, individuals, government entities, and private businesses working in areas that align with the departments' needs.
4. Analyzed the work conducted by all the researched efforts against the work done, goals, and the needs by the MHUSD departments.
5. Proposed potential collaborations for developing infrastructural and operational projects to advance MHUSD's departments goals.

# Climate Actions

## Summary of Goals and Needs

GROUNDS & MAINTENANCE	TRANSPORTATION DEPARTMENT	FOOD NUTRITION SERVICES
Education for staff on electricity consumption behaviors	Additional funding to electricity the complete bus fleet	Smarter ordering of biodegradable packaging
System to monitor which sites are using heating/AC excessively, and prevent this excessive usage	Increase capacity to electrify buses beyond current bus routes and cover extra transportation needs (field trips)	Large scale composable units and 24 hour compost machines
Occupancy at odd times of the year	Use Data on traffic at drop-off and pick-up times to create an action plan to reduce traffic	Favorable composition behaviors
Support to ensure all appliances and electronics are unplugged	The infrastructure of the district is not currently suited for a large-scale electric fleet	Cost for pick up of compost by waste management company
Reduce number of appliances in classrooms for personal use	More charging stations	Kitchens built for scratch cooking
Water conservation measures: student and buildings level		Data analysis of impact of Eat Real certification and carbon footprint of meals served

# Climate Actions

## Summary of Research

BUILDING DECARBONIZATION	TRANSPORTATION	WATER CONSERVATION	WASTE MANAGEMENT	FOOD SYSTEMS
Bay Area Regional Energy Network	Vessel Bot	Santa Clara Valley Water	Recology South Valley	Student Nutrition Program
San Jose Clean Energy	Morgan Hill Quick Ride (MoGo)		CleanHub	Farmtech's-Freight Farm Model
	Tropos Technology		PreZero	Santa Clara Food System Program
	Vision Zero		Composting Education Program	
	California Clean Air Day		Santa Clara County Food Recovery Program	
	Chargepoint			
	Morgan Hill Climate Action Plan 2021			
	VTA: Santa Clara Valley Transportation Authority			
	California Clean Transportation Program			

# Climate Action

## Water Recommendations



**District's Need:** Increase water conservation measures

**Organization:** Santa Clara Valley Water District

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**Work Conducted:**

- Supplies clean and safe water flood protection and stewardship of streams on behalf of Santa Clara County's 2 million residents.
- Ensures a sustainable and reliable water supply for local businesses, households, and agricultural operations.

**Recommended Actions with MHUSD**

- Collaborate with SCVWD as part of a plan to increase access to clean water through water fountains and sinks at every MHUSD school.
- Pair the infrastructural improvement (water fountains) with educational programs and activities: water efficient practices at school and at home.

**Author:** Lorelei Henry

# Climate Action

## Transportation Recommendations

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**District's Need:** Funding to electricity the bus fleet

**Government Entity:** California Energy Commission

**Program:** California Clean Transportation Program

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### **Work Conducted:**

- Promotes accelerated development and deployment of zero-emission vehicles and related infrastructure through annual investments of up to \$100 million with the Clean Transportation Program.

### **Recommended Potential Partnership & Collaborations:**

- Apply for a grant funding solicitation to be one of the sponsored projects for the 2025 year as to receive a multi-million dollar grant that would be put towards electrifying the complete district's school bus fleet.
- Provide charging infrastructure that is suited for a large-scale electric fleet as it is needed to power a continuously growing number of zero emission buses.

**Author:** Sofía Ruiz-McGuinty

# Climate Action

## Waste & Food Systems Recommendations



**District's need:** Large scale composting

**Government Entity:** Recycling and Waste Reduction Commission of Santa Clara County

**Program:** Composting Education Program

**Work Conducted:**

- Promote composting on the individual and community level to tackle unnecessary food waste and increase local waste management.
- Offers free workshops and school presentations that educate on how to do composting at home.

**Recommended Actions with MHUSD:**

- As part of a pilot program to install and run 24 hour compost machines, offer an education program to students about composting.
- Once there are large scale composable units district wide, provide composting and food waste education from a young age and as part of subjects.
- Environmental clubs could take advantage of the education programs to facilitate composting at their school and provide more exposure to their club and promote environmental literacy around food waste and its connection to climate change.

**Author:** Marium Farooqui, Kaylyn Nguyen

# THANK YOU!

Learn more at  
[climateactionpathways.org](https://climateactionpathways.org)

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 Climate Action Pathways for Schools