



Marion Cross School

SAU 70 Climate Action Plan Annex D

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1 MARION CROSS SCHOOL GREENHOUSE GAS EMISSIONS

The Marion Cross School (MCS) CAP Annex shows the 2022-2023 school year greenhouse gas (GHG) inventory by emission sector and forecasted emissions for 2030 and 2050. The emission sectors include building energy use, tons of solid waste generated, gallons of wastewater generated, gallons of water consumed, and energy use for transportation which includes school bus routes, employee commute and student commute. This data was used to calculate the GHG emissions from each sector in metric tons of CO₂ equivalents (MTCO₂e).

1.1 2022-2023 SCHOOL YEAR GREENHOUSE GAS EMISSIONS

The 2022-2023 school year inventory shows that MCS's operations generated 336 MTCO₂e. MCS's GHG inventory is broken down into seven sectors, which are described in more detail in the SAU 70 CAP.

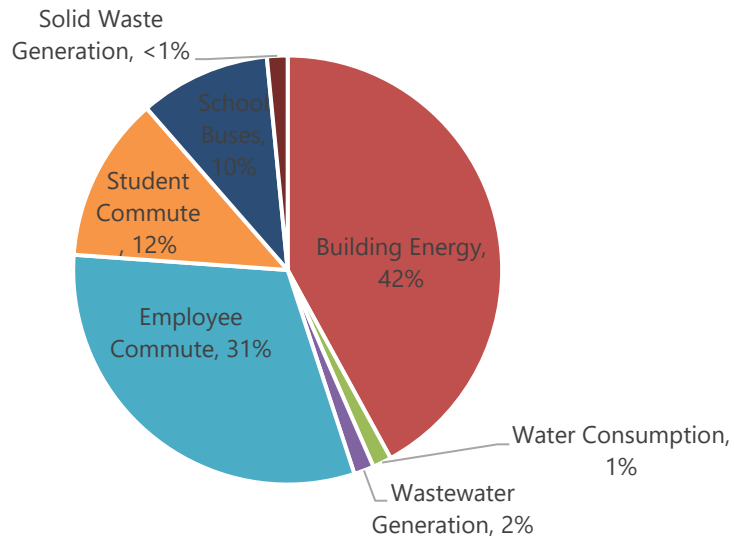
Table D-1 shows the breakdown of MCS's GHG emissions in the 2022-2023 school year.

Table D-1. MCS 2022-2023 School Year Greenhouse Gas Emissions Inventory

Emissions Sector	Greenhouse Gas Emissions (MTCO ₂ e)	Percent of Total
Building Energy	141	42%
<i>Electricity</i>	1	<1%
<i>#2 Fuel Oil</i>	140	42%
Employee Commute	105	31%
Student Commute	42	12%
School Buses	33	10%
Wastewater Generation	5	2%
Solid Waste Generation	5	2%
Water Consumption	5	1%
Total	336	100%

Figure D-1 shows that the greatest source of emissions stems from building energy and represents 42 percent of the total emissions. Employee commute represents the second highest emission sector at 31 percent and student commute represents 12 percent of total emissions. GHG reduction measures can be found in section 5 of the SAU 70 CAP.

Figure D-1. MCS 2022-2023 School Year Greenhouse Gas Emissions Inventory



1.2 PROJECTED GREENHOUSE GAS EMISSIONS

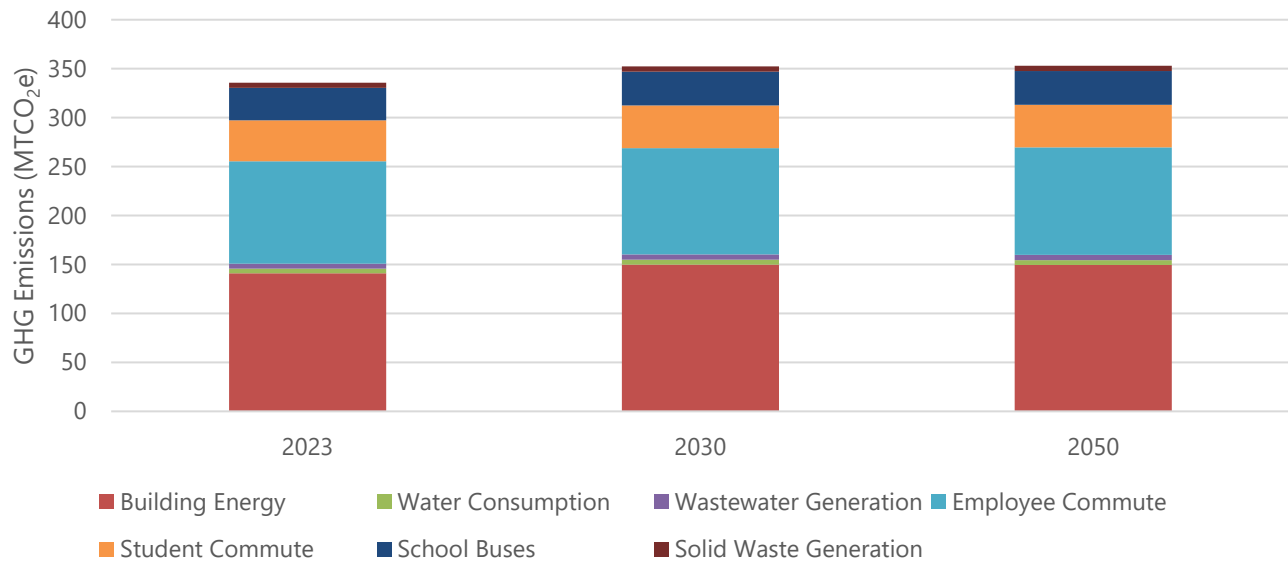
The MCS GHG emissions for 2023 and projected emissions for the years 2030 and 2050 are shown in Table D-2. The forecasted emissions are a “business-as-usual” scenario. Growth projections in emissions are based on anticipated population growth in the town of Norwich as provided by the SAU 70 administration. The forecast indicates that if MCS does not take action, GHG emissions will continue to increase.

Table D-2. MCS Greenhouse Gas Emissions Inventory and Forecasts by Sector

Emissions Sector	Greenhouse Gas Emissions (MTCO ₂ e)		
	2023	2030	2050
Building Energy	141	150	150
<i>Electricity</i>	1	4	4
<i>#2 Fuel Oil</i>	140	146	145
Employee Commute	105	109	110
Student Commute	42	44	43
School Buses	33	34	34
Wastewater Generation	5	5	5
Solid Waste Generation	5	5	5
Water Consumption	5	5	5
Total	336	352	353

Figure D-2 shows that the relative proportions of emissions from each sector are predicted to remain consistent in a BAU scenario through the year 2050.

Figure D-2. MCS Greenhouse Gas Emissions Inventory and Forecasts by Sector



For complete information regarding the emissions inventory and forecast, including methodology and supporting data, refer to the Emissions Data and Calculations located in Appendix A.

1.3 GREENHOUSE GAS REDUCTION TARGETS

The State of New Hampshire aims to reduce its GHG emissions by 20 percent from 1990 levels by 2025 and 80 percent below 1990 levels by 2050 (DES 2009:24-25). Almost all scientific sources recommend a reduction of 80 percent by 2050, which is the amount of GHG reduction deemed necessary by the United Nations’ Intergovernmental Panel on Climate Change to keep temperatures from exceeding a 2-degree Celsius (°C) increase above pre-industrial levels. For the sake of consistency in this SAU CAP, the MCS CAP aims to align with the NH recommendations.

Table D-3 shows MCS’s GHG emission forecasts and reduction targets for 2030 and 2050 relative to the baseline 2022-2023 school year data. This level of reduction corresponds to an annual emissions limit of 296 MTCO₂e in 2030 and 88 MTCO₂e in 2050. This is the maximum amount of annual GHG emissions allowable while achieving the reduction targets.

Table D-3. MCS Greenhouse Gas Emissions Forecasts and Reduction Targets

	2030	2050
Forecasted Emissions (MTCO ₂ e)	352	353
Target Reduction (Percent)	16%	75%
Emissions Limit (MTCO ₂ e)	296	88
Emissions to be Reduced by CAP Measures to Meet Target (MTCO ₂ e)	56	265

Figure D-3 shows the trajectory of MCS’s GHG emissions in a BAU scenario in comparison to the GHG reduction targets established.

Figure D-3. MCS Greenhouse Gas Emissions Forecasts and Reduction Targets

