

THE ANN ARBOR PUBLIC SCHOOLS GREENHOUSE GAS INVENTORY

Middle School, High School and Other Buildings Report

Greenhouse Gas Inventory (GHGI)

The **AAPS GHGI** is a report that quantifies the amount of direct and indirect greenhouse gas emissions produced by the district. Fiscal Year (FY) 2010 (July 1, 2009-June 30, 2010) was the first complete data set at AAPS and is used as the baseline year in the GHGI. The baseline year is the year against which progress in reducing emissions is measured.

For this FY 2010-2023 report, the sources of emissions measured include: Scope 1 emissions of natural gas, diesel, gasoline, and site sequestration; Scope 2 emissions of electricity; and Scope 3 emissions of water. In FY 2023, results indicated AAPS's greenhouse gas emissions sources were 55% from electricity, 39% from natural gas, 6% from diesel fuel, and less than 1% from water and gasoline. In addition, AAPS sites (grass, forests, and ponds) removed 2,200 metric tons of CO₂ from the atmosphere, equivalent to 6% of the District's annual emissions.

Since FY 2010, AAPS has seen a 24% reduction in total emissions, a 26% reduction in emissions per student, and a 25% reduction in emissions per 1,000 square feet.

Mission

The Ann Arbor Public Schools is committed to care for the environment, to model and achieve an environmentally sustainable existence. We demonstrate this commitment, both through our critical mission of educating generations of students as strong stewards of the environment, and also in living an environmental commitment with every decision across every area of the organization.

Vision

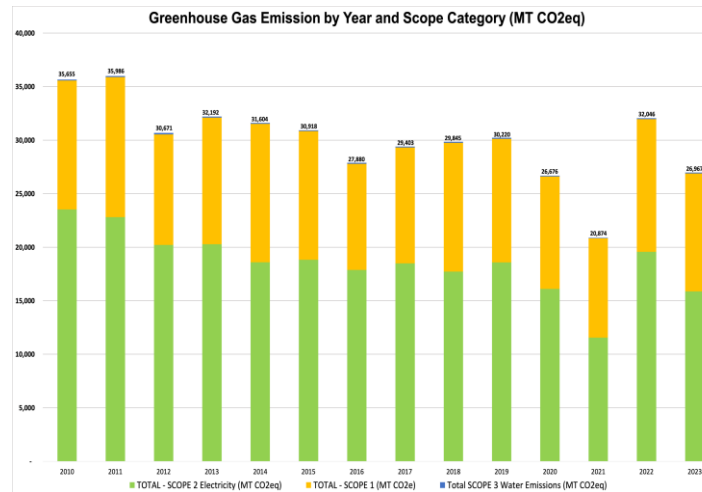
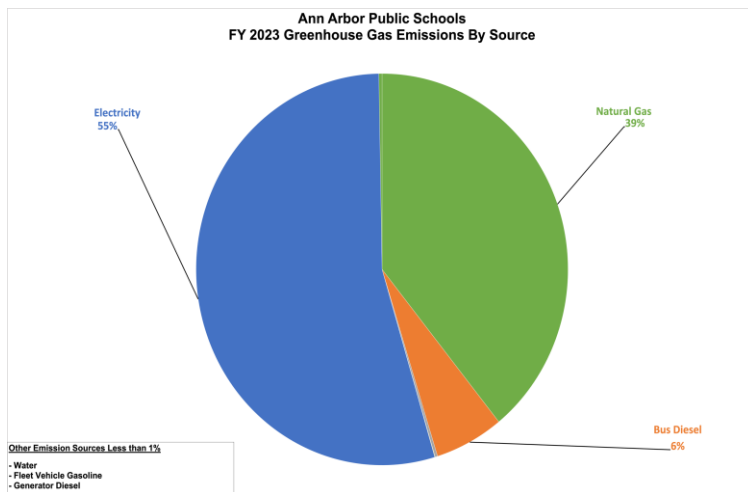
In all decisions, we embody and live the deeply held value of caring for the earth and our environment. Individual, team and district decisions are consistent with care for the earth.

AAPS Environmental Sustainability Framework

In December 2022, the Ann Arbor Public Schools adopted an Environmental Sustainability (ES) Framework. Advised by the District's Environmental Sustainability Taskforce and guided by Board Policy 8000: Environmental Sustainability. The AAPS ES Framework recognizes that while AAPS has been engaged in environmental sustainability efforts for decades, this is a critical time to renew, deepen and align those efforts. The current and looming climate crisis requires continued efforts to organize and institutionalize systemic changes. Included in the ES Framework is a commitment to conduct a greenhouse gas inventory annually.

View the AAPS Environmental Sustainability Framework here:

<https://www.a2schools.org/Page/18978>



The Intergovernmental Panel on Climate Change (IPCC) of the United Nations defines Scope 1, 2 and 3 emissions as:

'Scope 1' indicates direct greenhouse gas (GHG) emissions that are from sources owned or controlled by the reporting entity. 'Scope 2' indicates indirect GHG emissions associated with the production of electricity, heat, or steam purchased by the reporting entity. 'Scope 3' indicates all other indirect emissions, i.e., emissions associated with the extraction and production of purchased materials, fuels, and services, including transport in vehicles not owned or controlled by the reporting entity, outsourced activities, waste disposal, etc. (WBCSD and WRI, 2004).

Scope 1 - Direct Emissions

Scope 1 emissions are atmospheric GHG emissions directly generated by AAPS. The majority of these emissions at AAPS come from the burning of natural gas for space and water heating, as well as diesel and unleaded gasoline for buses and fleet vehicles.

A plan to outline, detail and confirm interim targets will be developed. Electrification of buildings and vehicles will be central elements of the plan.

GOAL: The AAPS will eliminate Scope 1 emissions by 2035.

Scope 2 - Indirect Energy Emissions

Scope 2 emissions are atmospheric GHG emissions attributed to purchased utilities. At AAPS, these are the emissions associated with purchased grid electricity. Currently AAPS uses approximately 30,000 megawatt hours of electricity annually. By combining on-site solar production, the Michigan Renewable Portfolio Standard, and utility-scale renewable energy from DTE Energy, AAPS will eliminate Scope 2 emissions by 2024.

In the last three years, AAPS has been installing 8 large rooftop solar arrays that when fully operational in 2023, will generate approximately 6% of the District's electricity, or 1800 megawatt hours annually.

In addition, the State of Michigan's Renewable Portfolio Standard (RPS) required all utilities to provide 15% of their electricity from renewable sources by 2021. This accounts for 4500 megawatt hours annually at AAPS.

To quickly secure an additional 80% Scope 2 emissions reduction, AAPS entered a 20-year contract with DTE Energy and the MIGreen Power program to supply 24,000 megawatt hours annually to AAPS from newly constructed utility-scale wind and solar projects built in Michigan by 2024.

GOAL: The AAPS will eliminate Scope 2 emissions by 2024.

Scope 3 - Other Indirect Emissions

Scope 3 emissions are atmospheric GHG emissions attributed to a wide range of other activities, including purchased goods and services, construction materials, waste, commuting and financial investments. For many institutions and businesses, Scope 3 emissions are the largest of the three scopes of GHG emissions.

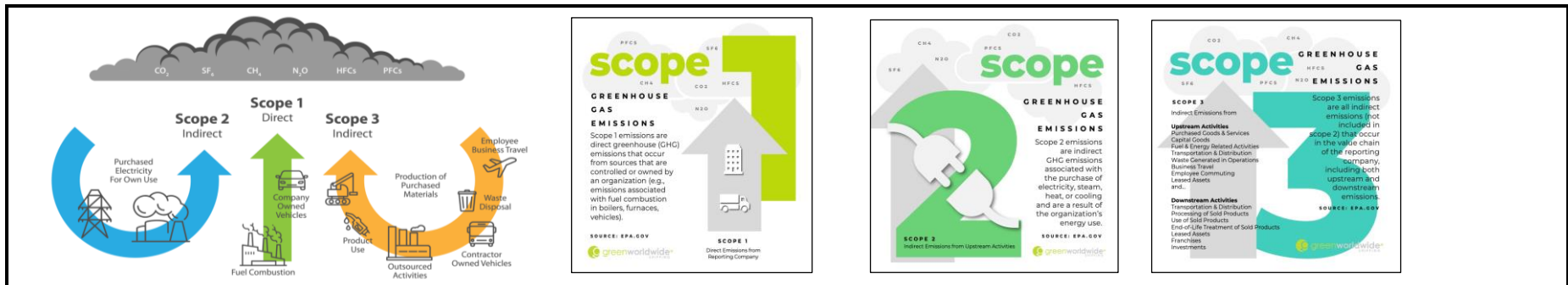
At AAPS, many of the Scope 3 emissions are associated with purchased items such as laptops and other technology, books, paper, construction materials and other supplies - as well as contracted services such as lawn maintenance and snow removal, custodial and food services and other services.

Measuring Scope 3 emissions is challenging and requires an accounting of both Upstream carbon emissions (mining, logging, manufacturing, packaging, transportation, etc.) and Downstream carbon emissions (product use, disposal, etc.). While the global community is developing methods for calculating and reporting Scope 3 emissions, it is impossible at this time to accurately calculate the district's Scope 3 emissions for all areas.

Community partnerships will be critical in reducing Scope 3 emissions as many of the solutions are beyond the district's control and will require transforming the marketplace for goods and services to carbon neutrality. This effort will require creative strategies working at scale across our city, county, region, nation and world.

AAPS will continue to collaborate with local partner institutions to better measure, track and reduce Scope 3 emissions.

GOAL: In the 2023-2024 school year, develop purchasing and construction guidelines that reflect the district's commitments to reducing Scope 3 emissions and begin piloting the new guidelines in 2024.



Terms	Definitions
<i>100 Cubic Feet (CCF)</i>	A common unit of measurement for natural gas.
<i>Carbon Dioxide (CO2)</i>	A heat-trapping chemical compound that arises due to the burning of fossil fuels and contains one carbon atom double bonded with two oxygen atoms per molecule
<i>Metric Tons Carbon Dioxide Equivalent (MT CO2eq)</i>	A unit of measurement for emissions of greenhouse gases.
<i>CO2 Sequestration</i>	The process of capturing and storing carbon dioxide from the atmosphere.
<i>Greenhouse Gases</i>	Gases in the atmosphere such as water vapor, carbon dioxide, methane, and nitrous oxide that can absorb infrared radiation, trapping heat in the atmosphere. This greenhouse effect means that emissions of greenhouse gases due to human activity cause global warming.
<i>Kilogallon (kgal)</i>	A unit of measurement for volume that is equal to 1000 gallons.
<i>Kilowatt- Hour (kWh)</i>	A measurement of electrical energy that is equal to a power consumption of 1,000 watts for 1 hour.
<i>Scope 1 Emissions</i>	Direct greenhouse gas emissions that are from sources owned or controlled by the reporting entity.
<i>Scope 2 Emissions</i>	Indirect greenhouse gas emissions associated with the production of electricity, heat, or steam purchased by the reporting entity.
<i>Scope 3 Emissions</i>	All other indirect greenhouse gas emissions, i.e., emissions associated with the extraction and production of purchased materials, fuels, and services, including transport in vehicles not owned or controlled by the reporting entity, outsourced activities, waste disposal, etc.

Conversion Factors for MT CO₂eq Emissions Calculations

SCOPE 1

Emission Source	Factor	Units
Natural Gas	0.00671	MT CO ₂ eq/CCF
Diesel Fuel	0.01021	MT CO ₂ eq/gal
Gasoline 87 Octane 10% Ethanol	0.00706	MT CO ₂ eq/gal
Mowed Grass Sequestration	-0.80	MT CO ₂ eq/acre
Average Forest Sequestration	-2.50	MT CO ₂ eq/acre
Pond/Wetland Sequestration	-80.00	MT CO ₂ eq/acre

SCOPE 2

Electricity (2010)	0.000769	MT CO ₂ eq/kWh
Electricity (2011)	0.000759	MT CO ₂ eq/kWh
Electricity (2012)	0.000746	MT CO ₂ eq/kWh
Electricity (2013)	0.000786	MT CO ₂ eq/kWh
Electricity (2014)	0.000736	MT CO ₂ eq/kWh
Electricity (2015)	0.000726	MT CO ₂ eq/kWh
Electricity (2016)	0.000714	MT CO ₂ eq/kWh
Electricity (2017)	0.000678	MT CO ₂ eq/kWh
Electricity (2018)	0.000682	MT CO ₂ eq/kWh
Electricity (2019)	0.000691	MT CO ₂ eq/kWh
Electricity (2020)	0.000649	MT CO ₂ eq/kWh
Electricity (2021)	0.000527	MT CO ₂ eq/kWh
Electricity (2022)	0.000602	MT CO ₂ eq/kWh
Electricity (2023)	0.000526	MT CO ₂ eq/kWh

SCOPE 3

Water	3.179	MT CO ₂ e/MG
-------	-------	-------------------------

Greenhouse Gas Inventory

Fiscal Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*	2022**	2023
Square Feet	46,600	46,600	46,600	46,600	46,600	46,600	46,600	46,600	46,600	46,600	46,600	46,600	46,600	46,600
CO2 Sequestration (tons)***	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7
ELECTRICITY														
kWh	1,036,491	1,041,915	1,008,280	907,019	752,090	746,491	709,800	747,762	734,776	759,733	683,803	610,400	655,877	679,592
kWh/1000 SF	22,242	22,359	21,637	19,464	16,139	16,019	15,232	16,046	15,768	16,303	14,674	13,099	14,075	14,584
MT CO2eq	797	791	752	713	554	542	507	507	501	525	444	322	395	357
NATURAL GAS														
CCF	16,076	19,571	10,317	17,610	22,442	20,833	17,476	19,486	21,556	24,666	20,722	18,786	20,945	16,196
CCF/1000 SF	345	420	221	378	482	447	375	418	463	529	445	403	449	348
MT CO2eq	108	131	69	118	151	140	117	131	145	166	139	126	141	109
WATER														
kgal	226	214	207	244	189	168	182	231	212	230	192	127	86	291
gal/1000 SF	4.85	4.59	4.45	5.24	4.06	3.59	3.90	4.97	4.54	4.94	4.13	2.72	1.84	6.25
MT CO2eq	0.718	0.680	0.659	0.776	0.601	0.532	0.577	0.736	0.673	0.731	0.612	0.403	0.272	0.926
TOTAL METRIC TONS OF CO2 EQUIVALENT EMISSIONS														
Total MT CO2eq	904	921	820	830	703	681	623	637	645	690	582	446	534	465
MT CO2eq/1000 SF	19.40	19.77	17.60	17.82	15.09	14.61	13.37	13.67	13.84	14.80	12.48	9.58	11.46	9.99
Abbreviations						Notes:								
MT CO2eq	kWh	SF	CCF	kgal	MG	* COVID Remote Learning								
						** COVID Enhanced Ventilation								
Metric Tons of Carbon Dioxide Equivalent Emissions	Kilowatt-hour	Square Feet	100 Cubic Feet	Kilogallon	Million Gallons	*** CO2 Sequestration occurs when CO2 is removed from the atmosphere by trees, grasses, ponds, and other processes.								

Greenhouse Gas Inventory

Fiscal Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*	2022**	2023
Square Feet	156,000	156,000	156,000	156,000	156,000	156,000	156,000	156,000	156,000	156,000	156,000	156,000	156,000	156,000
Student Enrollment	727	720	756	739	709	674	644	688	657	671	674	708	692	684
CO2 Sequestration (tons)***	-21.5	-21.5	-21.5	-21.5	-21.5	-21.5	-21.5	-21.5	-21.5	-21.5	-21.5	-21.5	-21.5	-21.5
ELECTRICITY														
kWh	1,039,395	957,226	899,104	785,624	728,571	818,457	826,385	945,873	970,297	977,320	968,713	831,059	1,158,275	1,108,467
kWh/1000 SF	6,663	6,136	5,763	5,036	4,670	5,247	5,297	6,063	6,220	6,265	6,210	5,327	7,425	7,106
kWh/student	1,430	1,329	1,189	1,063	1,028	1,214	1,283	1,375	1,477	1,457	1,437	1,174	1,674	1,621
MT CO2eq	799	727	671	618	536	594	590	641	662	675	629	438	697	583
NATURAL GAS														
CCF	124,773	100,631	85,616	106,370	94,744	62,941	78,634	66,748	64,785	82,229	117,295	92,463	109,298	100,881
CCF/1000 SF	800	645	549	682	607	403	504	428	415	527	752	593	701	647
CCF/student	172	140	113	144	134	93	122	97	99	123	174	131	158	147
MT CO2eq	837	675	574	714	636	422	528	448	435	552	787	620	733	677
WATER														
kgal	855	779	649	847	571	514	722	617	767	1375	1442	658	1143	2265
gal/1000 SF	5.48	4.99	4.16	5.43	3.66	3.29	4.63	3.95	4.92	8.82	9.24	4.22	7.33	14.52
gal/student	1176	1081	858	1146	805	762	1121	896	1168	2050	2139	929	1651	3311
MT CO2eq	2.717	2.475	2.062	2.693	1.814	1.633	2.295	1.960	2.440	4.372	4.584	2.091	3.633	7.200
TOTAL METRIC TONS OF CO2 EQUIVALENT EMISSIONS														
Total MT CO2eq	1,618	1,383	1,226	1,312	1,152	997	1,098	1,070	1,077	1,210	1,399	1,039	1,413	1,246
MT CO2eq/1000 SF	10.37	8.86	7.86	8.41	7.39	6.39	7.04	6.86	6.91	7.76	8.97	6.66	9.06	7.98
MT CO2eq/student	2.23	1.92	1.62	1.78	1.63	1.48	1.71	1.55	1.64	1.80	2.08	1.47	2.04	1.82
Abbreviations						Notes:								
MT CO2eq	kWh	SF	CCF	kgal	MG	* COVID Remote Learning ** COVID Enhanced Ventilation								
Metric Tons of Carbon Dioxide Equivalent Emissions	Kilowatt-hour	Square Feet	100 Cubic Feet	Kilogallon	Million Gallons	*** CO2 Sequestration occurs when CO2 is removed from the atmosphere by trees, grasses, ponds, and other processes.								

Greenhouse Gas Inventory

Fiscal Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*	2022**	2023
Square Feet	58,200	58,200	58,200	58,200	58,200	58,200	58,200	58,200	58,200	58,200	58,200	58,200	58,200	58,200
Student Enrollment	481	489	477	473	486	477	534	536	532	530	533	524	518	496
CO2 Sequestration (tons)***	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6
ELECTRICITY														
kWh	327,049	332,844	317,790	288,703	242,525	287,050	257,525	338,685	286,462	284,392	268,360	223,107	483,421	409,138
kWh/1000 SF	5,619	5,719	5,460	4,961	4,167	4,932	4,425	5,819	4,922	4,886	4,611	3,833	8,306	7,030
kWh/student	680	681	666	610	499	602	482	632	538	537	503	426	933	825
MT CO2eq	252	253	237	227	178	208	184	230	195	197	174	118	291	215
NATURAL GAS														
CCF	51,631	52,091	29,706	31,037	33,457	24,939	28,791	28,254	35,127	39,369	33,376	31,600	27,770	24,422
CCF/1000 SF	887	895	510	533	575	428	495	485	604	676	573	543	477	420
CCF/student	107	107	62	66	69	52	54	53	66	74	63	60	54	49
MT CO2eq	346	350	199	208	224	167	193	190	236	264	224	212	186	164
WATER														
kgal	232	454	380	367	266	642	861	882	634	702	282	488	425	294
gal/1000 SF	3.99	7.79	6.53	6.31	4.57	11.03	14.79	15.15	10.89	12.07	4.85	8.38	7.30	5.04
gal/student	483	928	796	776	548	1345	1612	1646	1191	1325	529	931	820	592
MT CO2eq	0.739	1.442	1.207	1.167	0.846	2.040	2.737	2.804	2.014	2.233	0.896	1.550	1.351	0.933
TOTAL METRIC TONS OF CO2 EQUIVALENT EMISSIONS														
Total MT CO2eq	597	602	436	435	402	376	378	420	432	461	397	330	477	378
MT CO2eq/1000 SF	10.26	10.34	7.49	7.47	6.91	6.46	6.50	7.22	7.41	7.93	6.83	5.66	8.20	6.50
MT CO2eq/student	1.24	1.23	0.91	0.92	0.83	0.79	0.71	0.78	0.81	0.87	0.75	0.63	0.92	0.76
Abbreviations						Notes:								
MT CO2eq	kWh	SF	CCF	kgal	MG	* COVID Remote Learning ** COVID Enhanced Ventilation								
Metric Tons of Carbon Dioxide Equivalent Emissions	Kilowatt-hour	Square Feet	100 Cubic Feet	Kilogallon	Million Gallons	*** CO2 Sequestration occurs when CO2 is removed from the atmosphere by trees, grasses, ponds, and other processes.								

Greenhouse Gas Inventory

Fiscal Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*	2022**	2023
Square Feet	234,638	234,638	234,638	234,638	234,638	234,638	234,638	234,638	234,638	242,998	242,998	242,998	242,998	242,998
Student Enrollment	1,043	1071	1,108	1089	1,125	1109	1,124	1123	1,140	1141	1,127	1026	967	1,047
CO2 Sequestration (tons)***	-37.1	-37.1	-37.1	-37.1	-37.1	-37.1	-37.1	-37.1	-37.1	-37.1	-37.1	-37.1	-37.1	-37.1
ELECTRICITY														
kWh	1,448,277	1,507,505	1,193,624	1,048,499	1,013,645	1,061,792	1,049,862	1,172,256	1,254,135	1,310,348	1,112,630	829,318	1,234,353	1,031,835
kWh/1000 SF	6,172	6,425	5,087	4,469	4,320	4,525	4,474	4,996	5,345	5,392	4,579	3,413	5,080	4,246
kWh/student	1,389	1,408	1,077	963	901	957	934	1,044	1,100	1,148	987	808	1,276	986
MT CO2eq	1,114	1,144	890	824	746	771	750	795	855	905	722	437	743	543
NATURAL GAS														
CCF	132,669	137,198	111,939	120,326	128,887	109,648	110,178	125,638	137,477	160,823	121,420	112,491	136,598	124,544
CCF/1000 SF	565	585	477	513	549	467	470	535	586	662	500	463	562	513
CCF/student	127	128	101	110	115	99	98	112	121	141	108	110	141	119
MT CO2eq	890	921	751	807	865	736	739	843	922	1,079	815	755	917	836
WATER														
kgal	2,242	1,565	3,070	2,292	2,571	1,971	2,086	2,670	2,374	2,390	1,767	1,145	2,950	2,167
gal/1000 SF	9.56	6.67	13.08	9.77	10.96	8.40	8.89	11.38	10.12	9.83	7.27	4.71	12.14	8.92
gal/student	2150	1461	2771	2105	2285	1777	1856	2377	2082	2094	1568	1116	3050	2070
MT CO2eq	7.128	4.974	9.760	7.288	8.173	6.266	6.631	8.487	7.545	7.597	5.618	3.639	9.377	6.888
SOLAR														
kWh													94,654	114,449
kWh/1000 SF													390	471
kWh/student													98	109
MT CO2eq avoidance****													-57	-60
TOTAL METRIC TONS OF CO2 EQUIVALENT EMISSIONS														
Total MT CO2eq	1,974	2,033	1,614	1,602	1,582	1,476	1,458	1,609	1,748	1,955	1,505	1,158	1,632	1,348
MT CO2eq/1000 SF	8.41	8.66	6.88	6.83	6.74	6.29	6.22	6.86	7.45	8.05	6.19	4.77	6.72	5.55
MT CO2eq/student	1.89	1.90	1.46	1.47	1.41	1.33	1.30	1.43	1.53	1.71	1.34	1.13	1.69	1.29
Abbreviations						Notes:								
MT CO2eq	kWh	SF	CCF	kgal	MG	* COVID Remote Learning								
						** COVID Enhanced Ventilation								
						*** CO2 Sequestration occurs when CO2 is removed from the atmosphere by trees, grasses, ponds, and other processes.								
Metric Tons of Carbon Dioxide Equivalent Emissions	Kilowatt-hour	Square Feet	100 Cubic Feet	Kilogallon	Million Gallons	**** Not included in Total MT CO2eq								

Greenhouse Gas Inventory



Fiscal Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*	2022**	2023
Square Feet	32,080	32,080	32,080	32,080	32,080	32,080	32,080	32,080	32,080	32,080	32,080	32,080	32,080	32,080
CO2 Sequestration (tons)***	-72.4	-72.4	-72.4	-72.4	-72.4	-72.4	-72.4	-72.4	-72.4	-72.4	-72.4	-72.4	-72.4	-72.4
ELECTRICITY														
kWh	312,116	322,192	329,525	310,832	273,039	272,748	267,019	249,619	234,026	185,679	210,424	237,693	197,595	148,726
kWh/1000 SF	9,729	10,043	10,272	9,689	8,511	8,502	8,324	7,781	7,295	5,788	6,559	7,409	6,159	4,636
MT CO2eq	240	245	246	244	201	198	191	169	160	128	137	125	119	78
NATURAL GAS														
CCF	21,308	21,822	17,751	18,957	19,156	19,547	17,926	17,986	26,884	22,128	21,330	19,751	23,031	18,864
CCF/1000 SF	664	680	553	591	597	609	559	561	838	690	665	616	718	588
MT CO2eq	143	146	119	127	129	131	120	121	180	148	143	133	155	127
WATER														
kgal	Well Water System													
TOTAL METRIC TONS OF CO2 EQUIVALENT EMISSIONS														
Total MT CO2eq	311	319	293	299	257	257	239	218	268	204	207	185	201	132
MT CO2eq/1000 SF	9.68	9.93	9.12	9.32	8.01	8.00	7.44	6.78	8.34	6.37	6.46	5.78	6.27	4.13
Abbreviations						Notes:								
MT CO2eq	kWh	SF	CCF	kgal	MG	* COVID Remote Learning								
						** COVID Enhanced Ventilation								
						*** CO2 Sequestration occurs when CO2 is removed from the atmosphere by trees, grasses, ponds, and other processes.								

Greenhouse Gas Inventory

Fiscal Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*	2022**	2023
Square Feet	405,187	405,187	405,187	405,187	405,187	405,187	405,187	405,187	405,187	405,187	405,187	405,187	405,187	405,187
Student Enrollment	1,779	1628	1604	1611	1515	1,506	1498	1538	1627	1720	1633	1617	1630	1749
CO2 Sequestration (tons)***	-80.7	-80.7	-80.7	-80.7	-80.7	-80.7	-80.7	-80.7	-80.7	-80.7	-80.7	-80.7	-80.7	-80.7
ELECTRICITY														
kWh	4,628,479	4,497,248	3,988,693	3,733,728	3,704,910	3,939,620	3,852,288	4,413,905	4,072,954	4,368,392	4,076,912	3,166,492	4,073,218	3,714,445
kWh/1000 SF	11,423	11,099	9,844	9,215	9,144	9,723	9,507	10,894	10,052	10,781	10,062	7,815	10,053	9,167
kWh/student	2,602	2,762	2,487	2,318	2,445	2,616	2,572	2,870	2,503	2,540	2,497	1,958	2,499	2,124
MT CO2eq	3,559	3,413	2,976	2,935	2,727	2,860	2,751	2,993	2,778	3,019	2,646	1,669	2,452	1,954
NATURAL GAS														
CCF	217,970	198,905	195,394	240,434	235,783	225,642	149,631	180,292	170,045	155,911	168,058	159,099	177,298	148,869
CCF/1000 SF	538	491	482	593	582	557	369	445	420	385	415	393	438	367
CCF/student	123	122	122	149	156	150	100	117	105	91	103	98	109	85
MT CO2eq	1,463	1,335	1,311	1,613	1,582	1,514	1,004	1,210	1,141	1,046	1,128	1,068	1,190	999
WATER														
kgal	6587	9369	15702	6173	4138	3644	5327	3952	4420	3305	3501	3869	7122	2374
gal/1000 SF	16.26	23.12	38.75	15.24	10.21	8.99	13.15	9.75	10.91	8.16	8.64	9.55	17.58	5.86
gal/student	3703	5755	9789	3832	2731	2420	3556	2570	2716	1921	2144	2393	4369	1358
MT CO2eq	20.940	29.784	49.916	19.625	13.153	11.584	16.936	12.563	14.050	10.505	11.130	12.299	22.640	7.548
SOLAR														
kWh													136,798	102,302
kWh/1000 SF													337.6	252.5
kWh/student													84	58
MT CO2eq avoidance****													-82	-54
TOTAL METRIC TONS OF CO2 EQUIVALENT EMISSIONS														
Total MT CO2eq	4,962	4,697	4,256	4,487	4,241	4,305	3,691	4,134	3,852	3,995	3,704	2,668	3,584	2,880
MT CO2eq/1000 SF	12.25	11.59	10.50	11.07	10.47	10.63	9.11	10.20	9.51	9.86	9.14	6.58	8.84	7.11
MT CO2eq/student	2.79	2.89	2.65	2.79	2.80	2.86	2.46	2.69	2.37	2.32	2.27	1.65	2.20	1.65
Abbreviations						Notes:								
MT CO2eq	kWh	SF	CCF	kgal	MG	* COVID Remote Learning ** COVID Enhanced Ventilation								
Metric Tons of Carbon Dioxide Equivalent Emissions	Kilowatt-hour	Square Feet	100 Cubic Feet	Kilogallon	Million Gallons	*** CO2 Sequestration occurs when CO2 is removed from the atmosphere by trees, grasses, ponds, and other processes. ****Not included in Total MT CO2eq								

Greenhouse Gas Inventory

A Greenhouse Gas Inventory (GHGI) is a report that quantifies the amount of direct and indirect greenhouse gas emissions produced by an organization. This document captures an individual AAPS school's electricity, natural gas, and water data to calculate the school's carbon emissions.



Fiscal Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*	2022**	2023
Square Feet	38,402	38,402	38,402	38,402	38,402	38,402	38,402	38,402	38,402	38,402	38,402	38,402	38,402	38,402
Student Enrollment	133	132	127	117	106	203	175	155	142	95	188	183	226	203
CO2 Sequestration (tons)***	-8.8	-8.8	-8.8	-8.8	-8.8	-8.8	-8.8	-8.8	-8.8	-8.8	-8.8	-8.8	-8.8	-8.8
ELECTRICITY														
kWh	292,927	263,603	242,938	245,012	227,700	246,966	233,951	276,373	267,360	285,660	256,180	208,464	293,074	295,553
kWh/1000 SF	7,628	6,864	6,326	6,380	5,929	6,431	6,092	7,197	6,962	7,439	6,671	5,428	7,632	7,696
kWh/student	2,202	1,997	1,913	2,094	2,148	1,217	1,337	1,783	1,883	3,007	1,363	1,139	1,297	1,456
MT CO2eq	225	200	181	193	168	179	167	187	182	197	166	110	176	155
NATURAL GAS														
CCF	30,555	32,689	24,840	26,390	28,733	28,087	24,381	22,560	29,120	31,332	26,330	25,412	28,452	25,179
CCF/1000 SF	796	851	647	687	748	731	635	587	758	816	686	662	741	656
CCF/student	230	248	196	226	271	138	139	146	205	330	140	139	126	124
MT CO2eq	205	219	167	177	193	188	164	151	195	210	177	171	191	169
WATER														
kgal	237	223	141	186	185	440	611	421	311	294	207	426	1053	729
gal/1000 SF	6.18	5.82	3.66	4.85	4.81	11.45	15.91	10.97	8.11	7.65	5.38	11.09	27.43	18.99
gal/student	1785	1692	1106	1592	1742	2166	3492	2718	2193	3092	1098	2327	4661	3592
MT CO2eq	0.755	0.710	0.447	0.592	0.587	1.398	1.943	1.339	0.990	0.934	0.656	1.354	3.348	2.318
TOTAL METRIC TONS OF CO2 EQUIVALENT EMISSIONS														
Total MT CO2eq	422	411	340	361	352	360	324	331	370	400	335	273	362	318
MT CO2eq/1000 SF	11.00	10.71	8.84	9.41	9.17	9.38	8.43	8.63	9.63	10.41	8.72	7.11	9.42	8.28
MT CO2eq/student	3.17	3.12	2.67	3.09	3.32	1.78	1.85	2.14	2.61	4.21	1.78	1.49	1.60	1.57
Abbreviations						Notes:								
MT CO2eq	kWh	SF	CCF	kgal	MG	* COVID Remote Learning ** COVID Enhanced Ventilation								
Metric Tons of Carbon Dioxide Equivalent Emissions	Kilowatt-hour	Square Feet	100 Cubic Feet	Kilogallon	Million Gallons	*** CO2 Sequestration occurs when CO2 is removed from the atmosphere by trees, grasses, ponds, and other processes.								

Greenhouse Gas Inventory

Fiscal Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*	2022**	2023
Square Feet	404,692	404,692	404,692	404,692	404,692	404,692	404,692	404,692	404,692	404,692	404,692	404,692	404,692	404,692
Student Enrollment	2,269	1910	1620	1651	1627	1,673	1749	1775	1822	1960	1948	1947	1881	1710
CO2 Sequestration (tons)***	-599.0	-599.0	-599.0	-599.0	-599.0	-599.0	-599.0	-599.0	-599.0	-599.0	-599.0	-599.0	-599.0	-599.0
ELECTRICITY														
kWh	4,361,037	4,109,455	3,676,982	3,579,709	3,387,017	3,392,779	3,290,610	3,599,904	3,468,410	3,608,318	3,348,082	2,987,083	3,703,845	3,814,853
kWh/1000 SF	10,776	10,155	9,086	8,846	8,369	8,384	8,131	8,895	8,570	8,916	8,273	7,381	9,152	9,427
kWh/student	1,922	2,152	2,270	2,168	2,082	2,028	1,881	2,028	1,904	1,841	1,719	1,534	1,969	2,231
MT CO2eq	3,354	3,119	2,743	2,814	2,493	2,463	2,349	2,441	2,365	2,493	2,173	1,574	2,230	2,007
NATURAL GAS														
CCF	276,824	302,378	239,769	326,356	349,187	258,367	235,005	247,745	280,786	281,330	261,545	258,623	278,683	300,242
CCF/1000 SF	684	747	592	806	863	638	581	612	694	695	646	639	689	742
CCF/student	122	158	148	198	215	154	134	140	154	144	134	133	148	176
MT CO2eq	1,858	2,029	1,609	2,190	2,343	1,734	1,577	1,662	1,884	1,888	1,755	1,735	1,870	2,015
WATER														
kgal	3885	7747	10353	5105	4116	4802	3826	4125	5751	4711	3557	1258	1346	2189
gal/1000 SF	9.60	19.14	25.58	12.61	10.17	11.87	9.45	10.19	14.21	11.64	8.79	3.11	3.33	5.41
gal/student	1712	4056	6390	3092	2530	2870	2188	2324	3156	2404	1826	646	716	1280
MT CO2eq	12.349	24.628	32.911	16.228	13.085	15.266	12.163	13.112	18.282	14.977	11.307	4.000	4.279	6.959
TOTAL METRIC TONS OF CO2 EQUIVALENT EMISSIONS														
Total MT CO2eq	4,625	4,574	3,786	4,421	4,250	3,613	3,340	3,517	3,669	3,797	3,340	2,715	3,505	3,429
MT CO2eq/1000 SF	11.43	11.30	9.35	10.92	10.50	8.93	8.25	8.69	9.07	9.38	8.25	6.71	8.66	8.47
MT CO2eq/student	2.04	2.39	2.34	2.68	2.61	2.16	1.91	1.98	2.01	1.94	1.71	1.39	1.86	2.01
Abbreviations						Notes:								
MT CO2eq	kWh	SF	CCF	kgal	MG	* COVID Remote Learning ** COVID Enhanced Ventilation								
Metric Tons of Carbon Dioxide Equivalent Emissions	Kilowatt-hour	Square Feet	100 Cubic Feet	Kilogallon	Million Gallons	*** CO2 Sequestration occurs when CO2 is removed from the atmosphere by trees, grasses, ponds, and other processes.								

Greenhouse Gas Inventory

A Greenhouse Gas Inventory (GHGI) is a report that quantifies the amount of direct and indirect greenhouse gas emissions produced by an organization. This document captures an individual AAPS school's electricity, natural gas, and water data to calculate the school's carbon emissions.



Fiscal Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*	2022**	2023
Square Feet	380,564	380,564	380,564	380,564	380,564	380,564	380,564	380,564	380,564	380,564	380,564	380,564	380,564	380,564
Student Enrollment	868	1228	1523	1501	1460	1,453	1467	1498	1481	1452	1395	1386	1324	1308
CO2 Sequestration (tons)***	-514.1	-514.1	-514.1	-514.1	-514.1	-514.1	-514.1	-514.1	-514.1	-514.1	-514.1	-514.1	-514.1	-514.1
ELECTRICITY														
kWh	6,196,136	6,523,793	5,884,047	6,445,052	6,957,894	6,632,125	6,026,550	5,968,844	5,298,377	5,664,146	5,101,650	6,326,245	10,723,463	8,592,925
kWh/1000 SF	16,281	17,142	15,461	16,936	18,283	17,427	15,836	15,684	13,922	14,884	13,405	16,623	28,178	22,579
kWh/student	7,138	5,313	3,863	4,294	4,766	4,564	4,108	3,985	3,578	3,901	3,657	4,564	8,099	6,570
MT CO2eq	4,765	4,952	4,389	5,066	5,121	4,815	4,303	4,047	3,613	3,914	3,311	3,334	6,456	4,520
NATURAL GAS														
CCF	27,080	29,161	25,397	36,968	34,050	31,014	30,931	31,983	29,628	34,027	37,039	38,356	57,446	45,313
CCF/1000 SF	71	77	67	97	89	81	81	84	78	89	97	101	151	119
CCF/student	31	24	17	25	23	21	21	21	20	23	27	28	43	35
MT CO2eq	182	196	170	248	228	208	208	215	199	228	249	257	385	304
WATER														
kgal	2042	2028	2792	2377	2241	2895	3367	3876	3414	4053	2320	3783	2140	598
gal/1000 SF	5.37	5.33	7.34	6.25	5.89	7.61	8.85	10.19	8.97	10.65	6.10	9.94	5.62	1.57
gal/student	2352	1652	1833	1584	1535	1993	2295	2588	2305	2791	1663	2730	1616	457
MT CO2eq	6.491	6.448	8.876	7.556	7.123	9.204	10.704	12.322	10.853	12.884	7.374	12.027	6.802	1.900
TOTAL METRIC TONS OF CO2 EQUIVALENT EMISSIONS														
Total MT CO2eq	4,439	4,640	4,055	4,807	4,843	4,518	4,007	3,760	3,309	3,641	3,053	3,089	6,334	4,312
MT CO2eq/1000 SF	11.66	12.19	10.65	12.63	12.72	11.87	10.53	9.88	8.70	9.57	8.02	8.12	16.64	11.33
MT CO2eq/student	5.11	3.78	2.66	3.20	3.32	3.11	2.73	2.51	2.23	2.51	2.19	2.23	4.78	3.30
Abbreviations						Notes:								
MT CO2eq	kWh	SF	CCF	kgal	MG	* COVID Remote Learning ** COVID Enhanced Ventilation								
Metric Tons of Carbon Dioxide Equivalent Emissions	Kilowatt-hour	Square Feet	100 Cubic Feet	Kilogallon	Million Gallons	*** CO2 Sequestration occurs when CO2 is removed from the atmosphere by trees, grasses, ponds, and other processes.								

Greenhouse Gas Inventory

Fiscal Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*	2022**	2023
Square Feet	190,090	190,090	190,090	190,090	190,090	190,090	190,090	190,090	190,090	190,090	190,090	190,090	190,090	190,090
Student Enrollment	718	731	755	762	769	768	777	798	776	719	695	696	702	738
CO2 Sequestration (tons)***	-11.0	-11.0	-11.0	-11.0	-11.0	-11.0	-11.0	-11.0	-11.0	-11.0	-11.0	-11.0	-11.0	-11.0
ELECTRICITY														
kWh	1,100,149	839,107	771,261	690,460	624,388	678,385	782,608	865,749	888,438	816,516	711,342	549,881	972,906	1,016,223
kWh/1000 SF	5,788	4,414	4,057	3,632	3,285	3,569	4,117	4,554	4,674	4,295	3,742	2,893	5,118	5,346
kWh/student	1,532	1,148	1,022	906	812	883	1,007	1,085	1,145	1,136	1,024	790	1,386	1,377
MT CO2eq	846	637	575	543	460	493	559	587	606	564	462	290	586	535
NATURAL GAS														
CCF	102,498	118,096	80,996	111,416	130,746	222,252	122,632	116,297	114,910	64,732	91,917	108,368	135,372	121,870
CCF/1000 SF	539	621	426	586	688	1,169	645	612	605	341	484	570	712	641
CCF/student	143	162	107	146	170	289	158	146	148	90	132	156	193	165
MT CO2eq	688	792	543	748	877	1,491	823	780	771	434	617	727	908	818
WATER														
kgal	1072	1082	1244	1459	2969	1549	1323	1302	1409	2035	3042	805	1700	2002
gal/1000 SF	5.64	5.69	6.54	7.67	15.62	8.15	6.96	6.85	7.41	10.71	16.00	4.23	8.94	10.53
gal/student	1493	1479	1648	1914	3860	2017	1702	1632	1815	2831	4377	1156	2422	2712
MT CO2eq	3.407	3.438	3.955	4.637	9.437	4.924	4.205	4.140	4.478	6.471	9.671	2.559	5.405	6.364
TOTAL METRIC TONS OF CO2 EQUIVALENT EMISSIONS														
Total MT CO2eq	1,526	1,422	1,112	1,284	1,335	1,978	1,375	1,360	1,370	994	1,077	1,008	1,488	1,348
MT CO2eq/1000 SF	8.03	7.48	5.85	6.75	7.02	10.40	7.23	7.16	7.21	5.23	5.67	5.31	7.83	7.09
MT CO2eq/student	2.13	1.94	1.47	1.68	1.74	2.58	1.77	1.70	1.77	1.38	1.55	1.45	2.12	1.83
Abbreviations						Notes:								
MT CO2eq	kWh	SF	CCF	kgal	MG	* COVID Remote Learning ** COVID Enhanced Ventilation								
Metric Tons of Carbon Dioxide Equivalent Emissions	Kilowatt-hour	Square Feet	100 Cubic Feet	Kilogallon	Million Gallons	*** CO2 Sequestration occurs when CO2 is removed from the atmosphere by trees, grasses, ponds, and other processes.								

Greenhouse Gas Inventory

Fiscal Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*	2022**	2023
Square Feet	215,942	215,942	215,942	215,942	215,942	215,942	215,942	215,942	215,942	215,942	215,942	215,942	215,942	215,942
Student Enrollment	721	723	733	757	737	738	755	773	774	770	746	745	671	670
CO2 Sequestration (tons)***	-14.6	-14.6	-14.6	-14.6	-14.6	-14.6	-14.6	-14.6	-14.6	-14.6	-14.6	-14.6	-14.6	-14.6
ELECTRICITY														
kWh	977,856	912,312	795,373	747,765	602,751	752,654	731,804	866,725	844,684	862,739	786,867	680,622	1,020,766	1,709,934
kWh/1000 SF	4,528	4,225	3,683	3,463	2,791	3,485	3,389	4,014	3,912	3,995	3,644	3,152	4,727	7,918
kWh/student	1,356	1,262	1,085	988	818	1,020	969	1,121	1,091	1,120	1,055	914	1,521	2,552
MT CO2eq	752	692	593	588	444	546	523	588	576	596	511	359	615	899
NATURAL GAS														
CCF	90,298	102,148	81,968	79,804	109,594	92,171	75,494	89,870	113,922	95,050	90,220	87,887	96,033	94,991
CCF/1000 SF	418	473	380	370	508	427	350	416	528	440	418	407	445	440
CCF/student	125	141	112	105	149	125	100	116	147	123	121	118	143	142
MT CO2eq	606	685	550	535	735	618	507	603	764	638	605	590	644	637
WATER														
kgal	1438	1373	1301	891	804	926	1037	974	1039	979	1271	311	977	1152
gal/1000 SF	6.66	6.36	6.02	4.13	3.73	4.29	4.80	4.51	4.81	4.53	5.89	1.44	4.52	5.33
gal/student	1994	1899	1774	1177	1091	1255	1374	1260	1342	1271	1704	418	1456	1719
MT CO2eq	4.570	4.364	4.135	2.833	2.557	2.944	3.297	3.097	3.301	3.112	4.042	0.989	3.105	3.662
TOTAL METRIC TONS OF CO2 EQUIVALENT EMISSIONS														
Total MT CO2eq	1,348	1,368	1,133	1,112	1,167	1,153	1,018	1,179	1,329	1,223	1,106	935	1,247	1,526
MT CO2eq/1000 SF	6.24	6.33	5.25	5.15	5.40	5.34	4.71	5.46	6.16	5.66	5.12	4.33	5.78	7.07
MT CO2eq/student	1.87	1.89	1.55	1.47	1.58	1.56	1.35	1.53	1.72	1.59	1.48	1.25	1.86	2.28
Abbreviations						Notes:								
MT CO2eq	kWh	SF	CCF	kgal	MG	* COVID Remote Learning ** COVID Enhanced Ventilation								
Metric Tons of Carbon Dioxide Equivalent Emissions	Kilowatt-hour	Square Feet	100 Cubic Feet	Kilogallon	Million Gallons	*** CO2 Sequestration occurs when CO2 is removed from the atmosphere by trees, grasses, ponds, and other processes.								

Greenhouse Gas Inventory

Fiscal Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*	2022**	2023
Square Feet	18,294	18,294	18,294	18,294	18,294	18,294	18,294	18,294	18,294	18,294	18,294	18,294	18,294	18,294
CO2 Sequestration (tons)***	-39.3	-39.3	-39.3	-39.3	-39.3	-39.3	-39.3	-39.3	-39.3	-39.3	-39.3	-39.3	-39.3	-39.3
ELECTRICITY														
kWh	281,650	361,442	260,690	211,698	298,918	281,377	215,129	244,430	231,270	178,537	162,419	150,718	192,648	184,792
kWh/1000 SF	15,396	19,757	14,250	11,572	16,340	15,381	11,760	13,361	12,642	9,759	8,878	8,239	10,531	10,101
MT CO2eq	217	274	194	166	220	204	154	166	158	123	105	79	116	97
NATURAL GAS														
CCF	15,577	16,498	12,217	15,419	20,037	16,068	11,330	11,308	12,901	14,665	12,243	11,582	12,696	12,139
CCF/1000 SF	851	902	668	843	1,095	878	619	618	705	802	669	633	694	664
MT CO2eq	105	111	82	103	134	108	76	76	87	98	82	78	85	81
WATER														
kgal	218	249	157	160	158	165	160	188	209	191	74	109	279	297
gal/1000 SF	11.91	13.61	8.59	8.73	8.63	9.02	8.74	10.29	11.43	10.44	4.06	5.98	15.27	16.21
MT CO2eq	0.693	0.792	0.499	0.508	0.502	0.525	0.508	0.598	0.665	0.607	0.236	0.348	0.888	0.943
TOTAL METRIC TONS OF CO2 EQUIVALENT EMISSIONS														
Total MT CO2eq	283	347	238	231	316	273	191	203	206	183	149	118	163	140
MT CO2eq/1000 SF	15.44	18.94	12.99	12.63	17.26	14.94	10.43	11.09	11.24	10.01	8.12	6.46	8.90	7.67
Abbreviations						Notes:								
MT CO2eq	kWh	SF	CCF	kgal	MG	* COVID Remote Learning								
						** COVID Enhanced Ventilation								
Metric Tons of Carbon Dioxide Equivalent Emissions	Kilowatt-hour	Square Feet	100 Cubic Feet	Kilogallon	Million Gallons	*** CO2 Sequestration occurs when CO2 is removed from the atmosphere by trees, grasses, ponds, and other processes.								

A Greenhouse Gas Inventory (GHGI) is a report that quantifies the amount of direct and indirect greenhouse gas emissions produced by an organization. This document captures an individual AAPS school's electricity, natural gas, and water data to calculate the school's carbon emissions.

