Town of Amherst
Greenhouse Gas Inventory FY 2025

Municipal and Community Report

Prepared by James Ordway

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Introduction

Background

The Town of Amherst Massachusetts seeks to achieve **net zero community emissions by 2050**, an ambitious goal set by the Town Council, in the 2021 Climate Action, Adaptation, and Resilience Plan (CAARP), consistent with Massachusetts State goals per the recommendation of the Energy and Climate Action Committee (ECAC). Using the 2016 emissions inventory as a baseline, the intermediary goals of **25% reduction in emissions by 2025** and **50% reduction in emissions by 2030** were set as well.

To accurately assess progress toward the ultimate goal of carbon neutrality, periodic emissions inventories are essential for tracking emissions trends and evaluating the effectiveness of climate action initiatives. This report seeks to determine whether the Town has achieved their 2025 target, to evaluate progress toward future milestones, to identify areas of success, and to identify areas that require further intervention.

Progress So Far

Between 2016 and 2025, the Town made measurable progress toward its emissions reduction goals. The municipality itself, which makes up only a small fraction of community-wide emissions, has seen a 16.8% reduction in emissions since 2016. Community-wide emissions decreased by 12.9% over the same interval. While the Town's emissions reductions fell short of the 2025 target of 25%, there are a number of ongoing large-scale sustainability projects that will bring these figures down in coming years, which are discussed later in this report.

Emissions reduction often does not follow a linear path, even in cases where consistent efforts and investments are put forth. As new, sustainable, construction and renovation projects are finished, as renewable energy facilities come online, emissions will drop steeply once the data reflects these projects. With a number of such projects ongoing and nearing completion, future updates of this report will tell a more complete story of how Amherst has been progressing toward net zero emissions.

Methodology

For purposes of consistency, the methodology of this report was kept close to that of the previous iterations of this report in 2016 and 2022, so that changes in emissions figures could be attributed to actual changes in emissions, rather than updates in methodology. Still, certain figures have been updated to reflect changes in emissions factors or to correct mistakes, though these changes have been small in scale. As carbon accounting is an evolving field, future updates to this report may be improved by updated methodologies, while keeping in mind the necessity of maintaining consistency for the integrity of comparative metrics.

Municipal Emissions Data

Emissions and energy consumption data for the Town of Amherst Municipality comes from MassEnergyInsight (MEI), a tool managed by the Massachusetts Department of Energy Resources (DOER). This tool is routinely updated with Town fuel consumption records, and is a data source that is generally considered to be reliable.

Community Emissions Data

Community emissions come from a variety of data sources with varying degrees of reliability. Much of the data is modeled using state-wide, or even nation-wide parameters, especially in the agriculture and waste sectors.

Structure of This Report

The first section of this report focuses on municipal emissions. Though municipal emissions only account for a small percentage of the community-wide total, this data is among the most actionable since the Town has direct control over its activities, and it is important that the Town leads by example in the pursuit of net zero emissions. The next section focuses on community-wide emissions, including emissions from colleges, businesses, and residents. Each section is broken down by sector, which includes stationary energy, transportation, waste, and agriculture. The report concludes with a summary of key findings and priorities going forward.

Municipal Inventory

Municipal Overview

Progress to Date

The Town of Amherst Municipality was responsible for 4,488 Metric Tons of CO2 Equivalent emissions in FY 2016. In FY 2025, this number was 3,732. This represents a **16.8% decrease in municipal emissions** relative to the 2016 baseline, which fell short of the Town's 25% emissions reduction goal for 2025. Fortunately, the Town currently has major, net-zero emission, construction and renovation projects underway that will bring municipal emissions much closer to these targets upon their completion. These projects will be discussed later in this report.

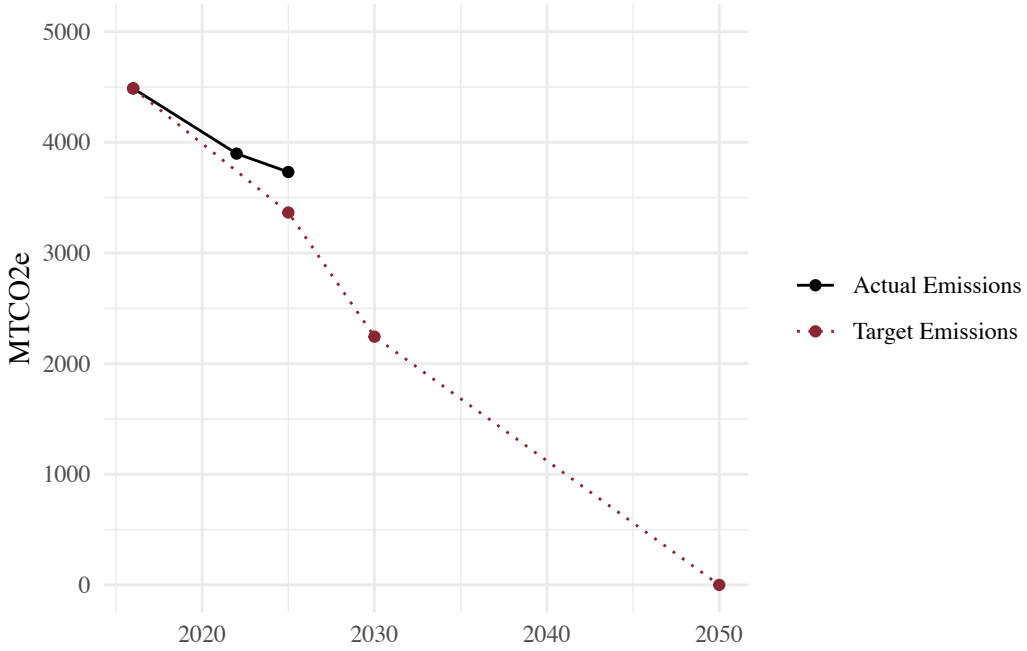


Figure 1: Plot of municipal GHG emissions (MTCO2e) by reporting year, and the Town of Amherst's emissions reductions goals with respect to 2016 baseline (25% by 2025, 50% by 2030, 100% by 2050).

Table 1: GHG emissions by year, along with percentage reductions relative to the 2016 baseline.

Inventory Year	Total MTCO2e	Percent Reduction
FY 2016	4,488	0.0%
FY 2022	3,898	-13.1%
FY 2025	3,732	-16.8%

Note: Previous inventories reported 4,389 and 3,852 MTCO2e for FY 2016 and FY 2022, respectively. These numbers were updated to reflect the latest data sources and methodologies.

Emissions by Sector

Municipal emissions fall into two categories: stationary energy and transportation. Stationary energy accounted for 74% of total emissions in 2025, up from 69% in 2022.

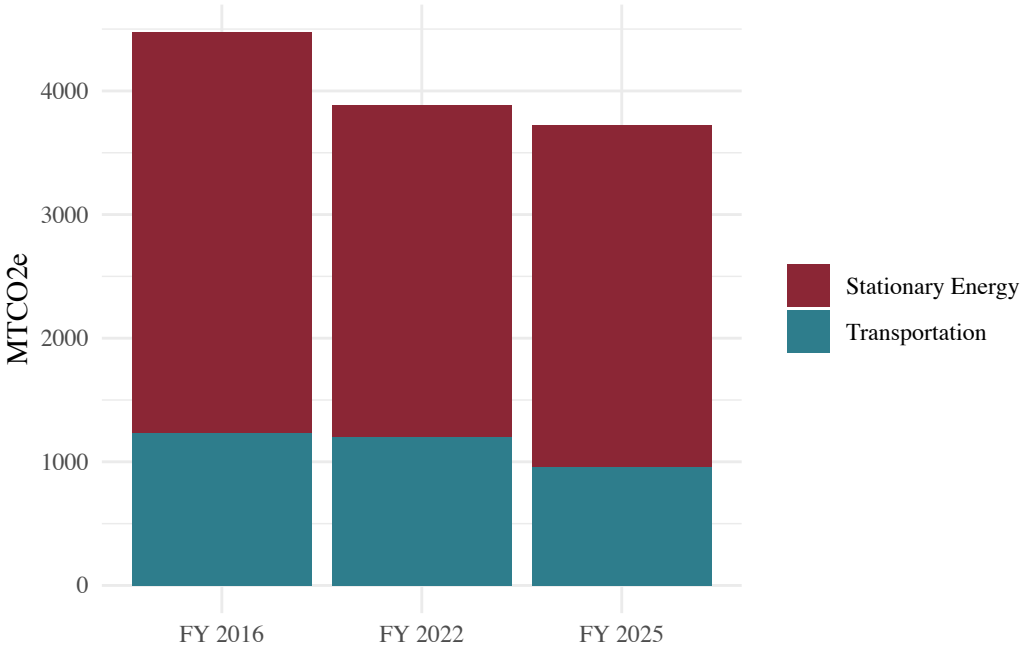


Figure 2: Municipal GHG emissions (MTCO2e) by reporting year, excluding transmission and distribution losses

Emissions by Fuel Type

The composition of fuel usage has changed over time within the municipality. Most notably, electricity has seen an increased share of total emissions, while the relative shares of gasoline and diesel have decreased. This is consistent with the Town's move toward more renewable energy sources.

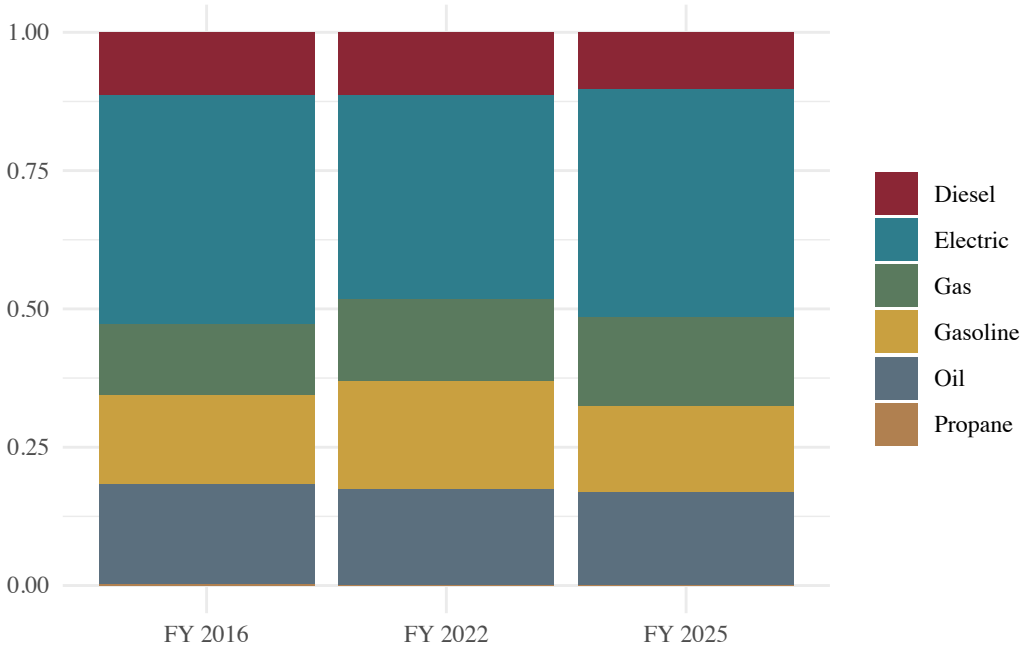


Figure 3: Share of greenhouse gas emissions by fuel source, excluding transmission and distribution losses.

Table 2: Fuel consumption in original units, with percent change relative to 2016 and 2022 inventories.

Fuel Type	Units	FY 2016	FY 2022	FY 2025	Δ% 2016	Δ% 2022
Transportation						
Diesel	Gallons	49,278.0	43,582.0	37,403.0	-24.1%	-14.2%
Gasoline	Gallons	79,926.0	85,325.0	64,641.0	-19.1%	-24.2%
Buildings & Stationary Infrastructure						
Electric	MWh	6,397.8	5,674.3	6,241.9	-2.4%	10.0%
Gas	Therms	106,312.0	108,331.0	112,052.0	5.4%	3.4%
Oil	Gallons	79,309.0	65,450.0	61,138.0	-22.9%	-6.6%
Propane	Gallons	1,654.0	1,017.0	1,062.0	-35.8%	4.4%

Municipal Stationary Energy

Broad Trends in Stationary Emissions

Stationary emissions accounted for 3244.4 MTCO2e in 2016, and 2764.2 MTCO2e in 2025, representing a **14.8% reduction**. Notably, despite an overall reduction in municipal emissions since 2022, stationary energy emissions were slightly higher in 2025 than they were in 2022, an increase of 80 MTCO2e.

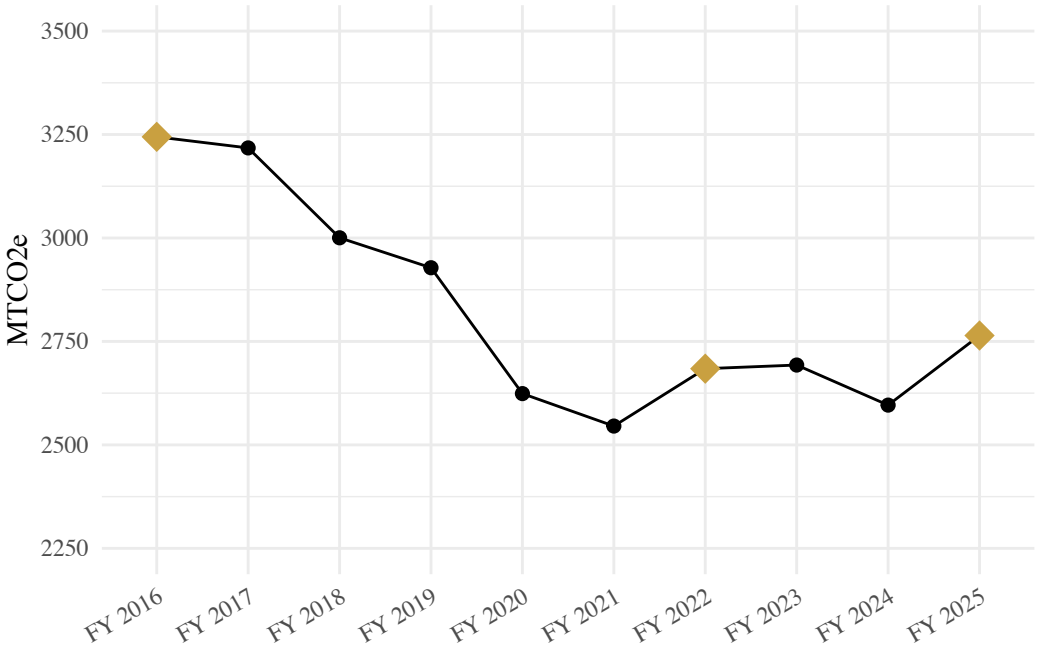


Figure 4: Municipal stationary emissions (MTCO2e) trends by fiscal year.

Table 3: Stationary GHG emissions by year, along with percentage reductions relative to the 2016 baseline.

Inventory Year	Stationary MTCO2e	Percent Reduction
2016	3,244	0.0%
2022	2,684	-17.3%
2025	2,764	-14.8%

Emissions by Fuel Type

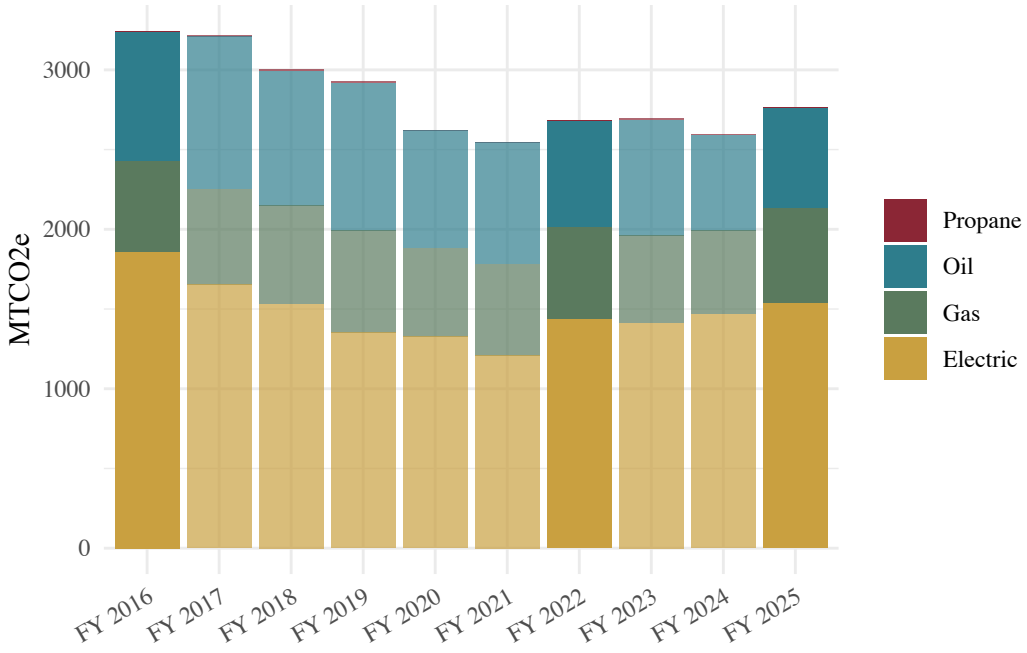


Figure 5: Stationary emissions by year by fuel type

Emissions by Facility Category

Buildings are responsible for the largest share of municipal emissions, accounting for 59.5% of stationary emissions for FY 2025. The next largest share is accounted for by water and sewer facilities, which amounts to 36.6% in FY 2025. The remaining emissions are attributed to open spaces and street/traffic lights, which account for the remaining 3.9%.

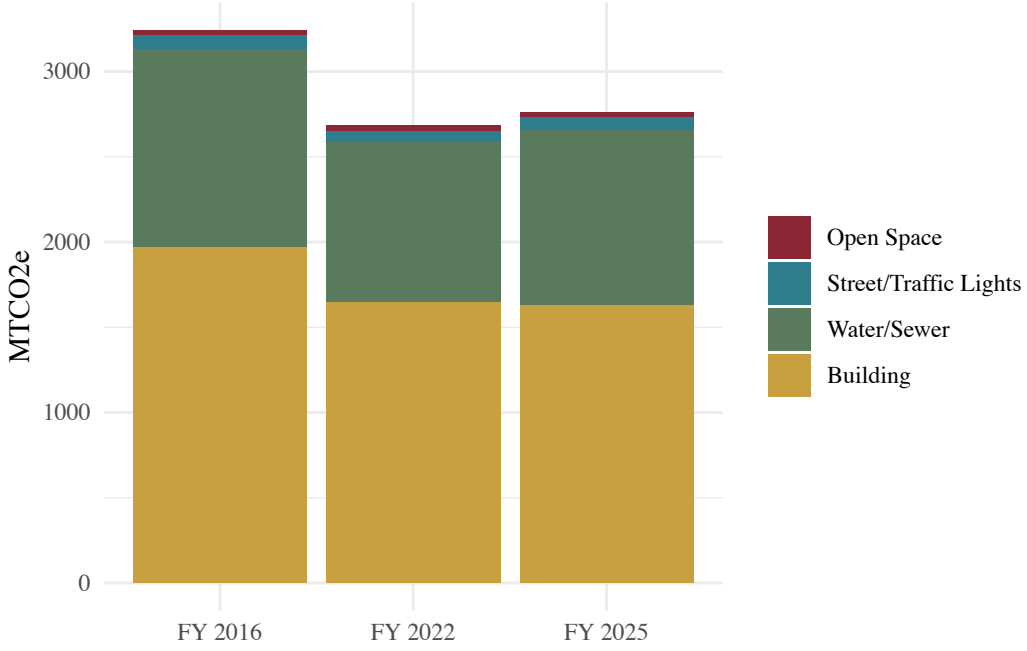


Figure 6: Municipal GHG emissions (MTCO2e) by building category

Highest-Emitting Facilities

The 10 municipal facilities with the highest emissions account for 2283 MTCO2e in 2025, which accounts for 61% of total municipal emissions.

- The new Amethyst Brook Elementary School is scheduled to be completed by the end of 2026, and will be a **net zero** facility. This building will replace both the Wildwood and Fort River elementary schools, which together account for 594.5 MTCO2e, or **16% of total municipal emissions in 2025**.
- The Jones Library renovation project is expected to be completed in early 2027. This will be another **net zero** facility. The library accounted for 119 MTCO2e in FY 2025.
- Pump station facilities increased fuel consumption since 2022. This may be due to general population/flow increases in recent years, aging systems, or simple volatility of the data, as this figure varies widely from year to year.

Table 4: Emissions (MTCO2e) data for highest-emissions municipal facilities.

Facility	FY 2016	FY 2022	FY 2025	Δ% 2016	Δ% 2022
Wastewater Treatment Facility	524.1	443.6	473.8	-9.6%	6.8%
Wildwood ES	372.9	306.9	346.6	-7.0%	12.9%
Pump Stations	309.9	173.5	294.5	-5.0%	69.7%
Fort River ES	306.9	257.3	247.9	-19.2%	-3.6%
Crocker Farm ES	326.5	257.6	209.9	-35.7%	-18.5%
Amherst Police Station	259.7	205.9	185.0	-28.8%	-10.2%
Treatment Plants	222.4	206.2	156.6	-29.6%	-24.0%
Amherst Bangs (Senior Ctr.)	93.7	123.5	131.7	40.5%	6.7%
Jones Library	107.6	107.2	119.4	11.0%	11.4%
Amherst Town Hall	119.5	122.6	117.5	-1.7%	-4.1%

Electricity

Electricity consumption increased significantly from 5674 megawatt hours (MWh) in FY 2022 to 6242 MWh in FY 2025, though this still represents a decrease from the FY 2016 consumption of 6398 MWh. Electricity consumption has increased steadily since the sharp decline in FY 2020 and FY 2021 due to the COVID-19 pandemic, and current levels in FY 2025 are much more typical of pre-pandemic usage.

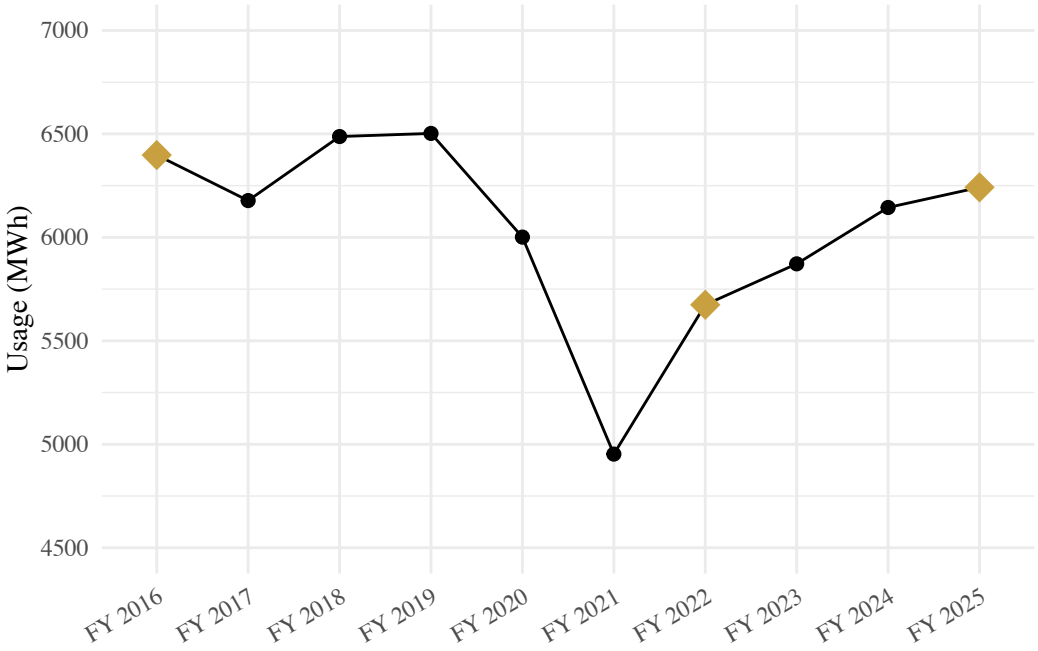


Figure 7: Municipal electricity usage (MWh) trends by fiscal year.

Electricity Top Consumers

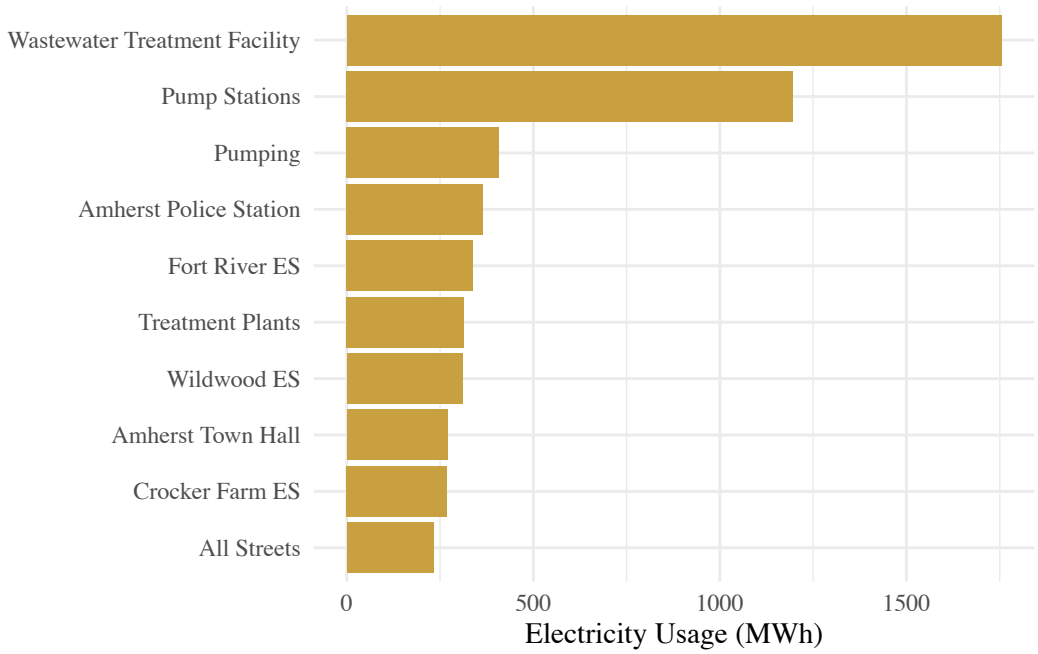


Figure 8: Highest electricity-consuming facilities (MWh) in 2025.

Table 5: Highest electricity-consuming (MWh) facilities in 2025, with their associated emissions (MTCO2e).

Facility	Electricity Usage (MWh)	Emissions (MTCO2e)
Wastewater Treatment Facility	1,755.1	414.0
Pump Stations	1,196.2	282.2
Pumping	408.3	96.3
Amherst Police Station	365.4	86.2
Fort River ES	338.4	79.8
Treatment Plants	314.3	74.1
Wildwood ES	309.9	73.1
Amherst Town Hall	269.7	63.6
Crocker Farm ES	268.4	63.3
All Streets	233.0	55.0

Methane Gas

Methane gas consumption has moderately increased since 2016. The two facilities that are responsible for the most methane gas emissions, Fort River Elementary School and the Jones Library, are set to be replaced by or renovated into net-zero emission facilities, which means overall municipal methane gas emissions should decrease dramatically upon the completion of these projects.

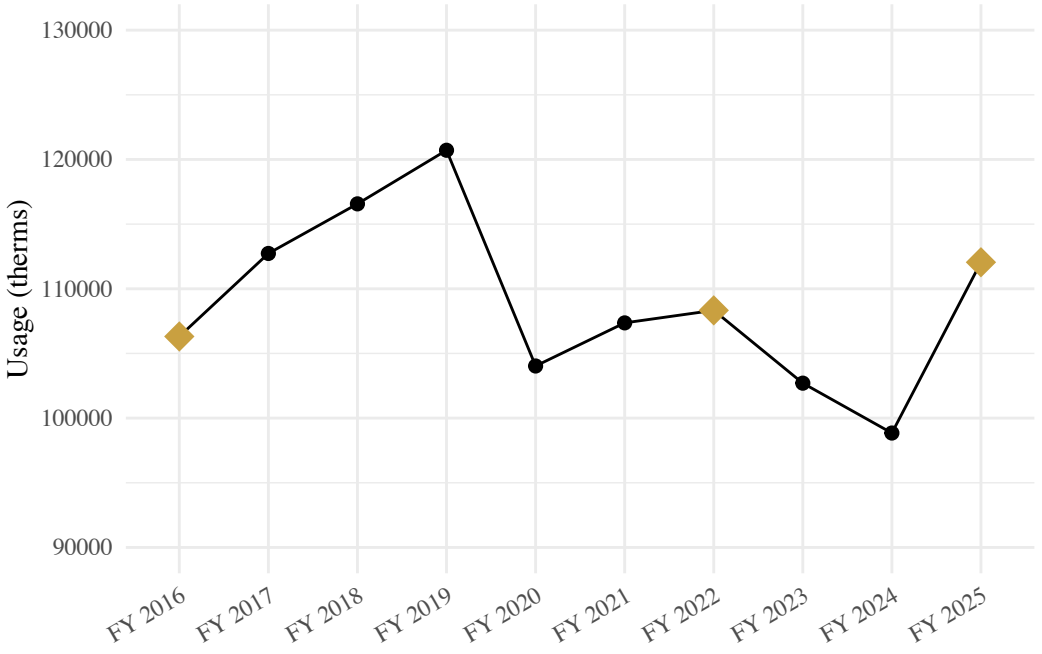


Figure 9: Municipal methane gas usage (therms) by fiscal year.

Methane Gas Top Consumers

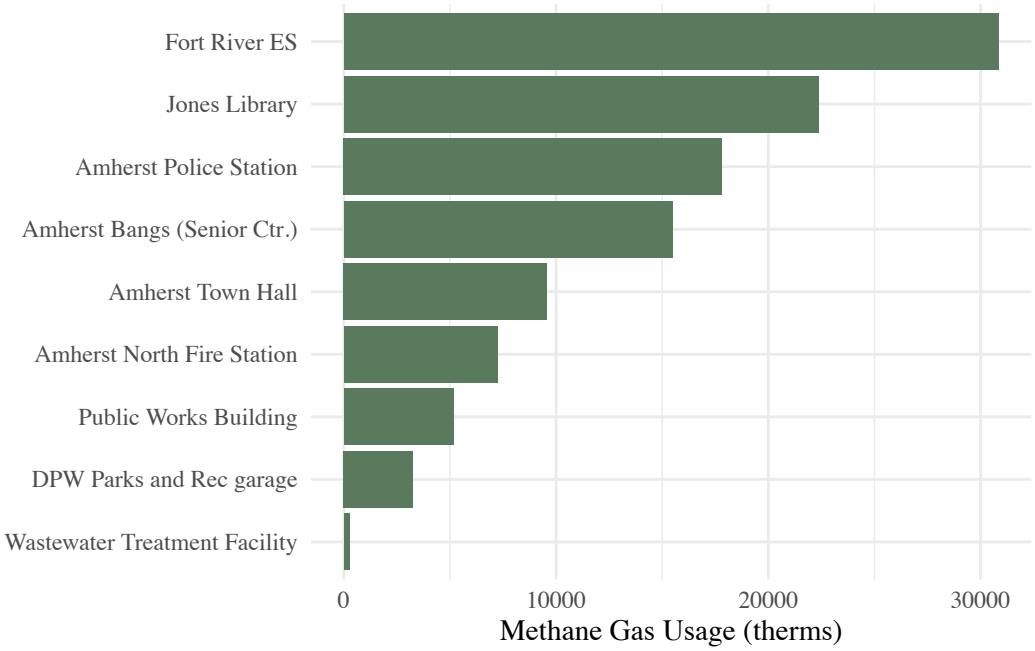


Figure 10: Highest methane gas-consuming facilities (therms) in 2025.

Table 6: Highest methane gas-consuming (therms) facilities in 2025, with their associated emissions (MTCO2e).

Facility	Methane Gas Usage (therms)	Emissions (MTCO2e)
Fort River ES	30,850.0	164.1
Jones Library	22,374.0	119.0
Amherst Police Station	17,812.0	94.7
Amherst Bangs (Senior Ctr.)	15,495.0	82.4
Amherst Town Hall	9,578.0	50.9
Amherst North Fire Station	7,253.0	38.6
Public Works Building	5,155.0	27.4
DPW Parks and Rec garage	3,255.0	17.3
Wastewater Treatment Facility	280.0	1.5

Oil

Oil consumption has decreased since 2016. Once Wildwood Elementary School is replaced by the new net-zero Amethyst Brook school, oil consumption should drop even further.

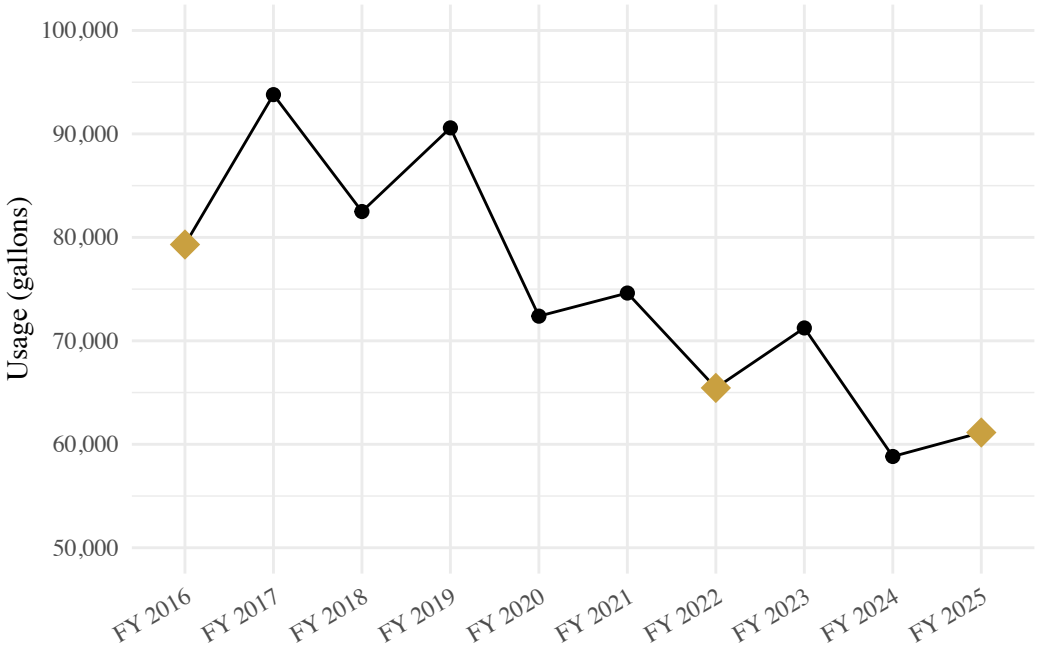


Figure 11: Municipal oil usage (gallons) by fiscal year.

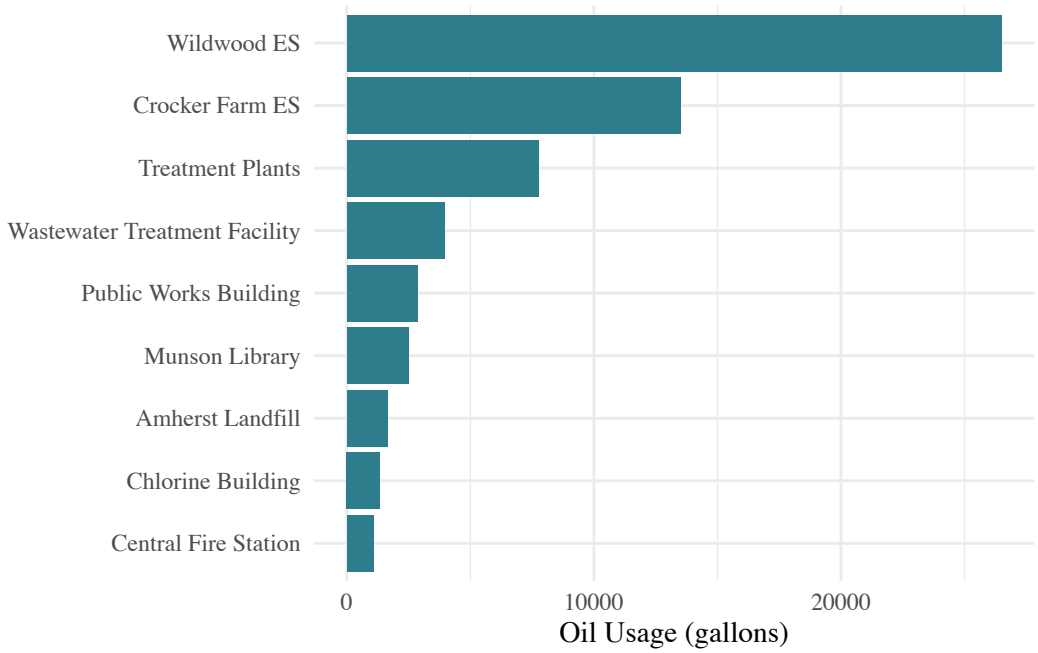


Figure 12: Highest oil-consuming facilities (gallons) in 2025.

Table 7: Highest oil-consuming (gallons) facilities in 2025, with their associated emissions (MTCO2e).

Facility	Oil Usage (gallons)	Emissions (MTCO2e)
Wildwood ES	26,501.0	270.3
Crocker Farm ES	13,500.0	137.7
Treatment Plants	7,770.0	79.3
Wastewater Treatment Facility	3,949.0	40.3
Public Works Building	2,858.0	29.2
Munson Library	2,497.0	25.5
Amherst Landfill	1,644.0	16.8
Chlorine Building	1,342.0	13.7
Central Fire Station	1,077.0	11.0

Municipal Transportation

Broad Trends in Transportation Emissions

Municipal emissions related to transportation decreased from 1,230 MTCO2e in FY 2016 to 955 MTCO2e in FY 2025, representing a **22.3% decrease** over that period.

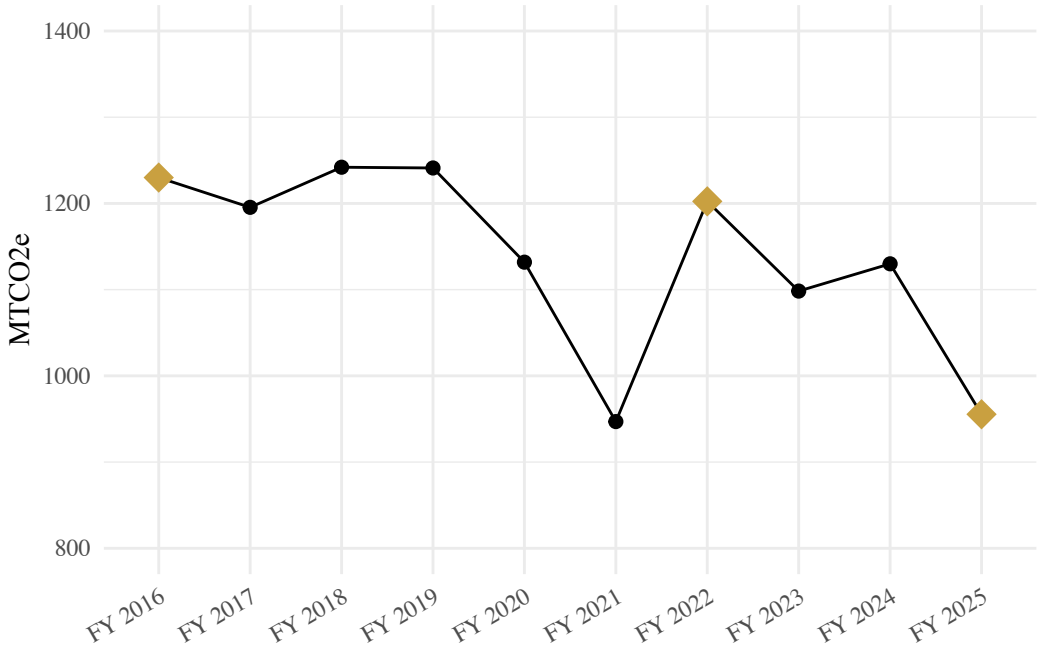


Figure 13: Municipal transportation emissions (MTCO2e) trends by fiscal year.

Table 8: Transportation GHG emissions by year, along with percentage reductions relative to the 2016 baseline.

Inventory Year	Transportation MTCO2e	Percent Reduction
2016	1,230	0.0%
2022	1,202	-2.2%
2025	955	-22.3%

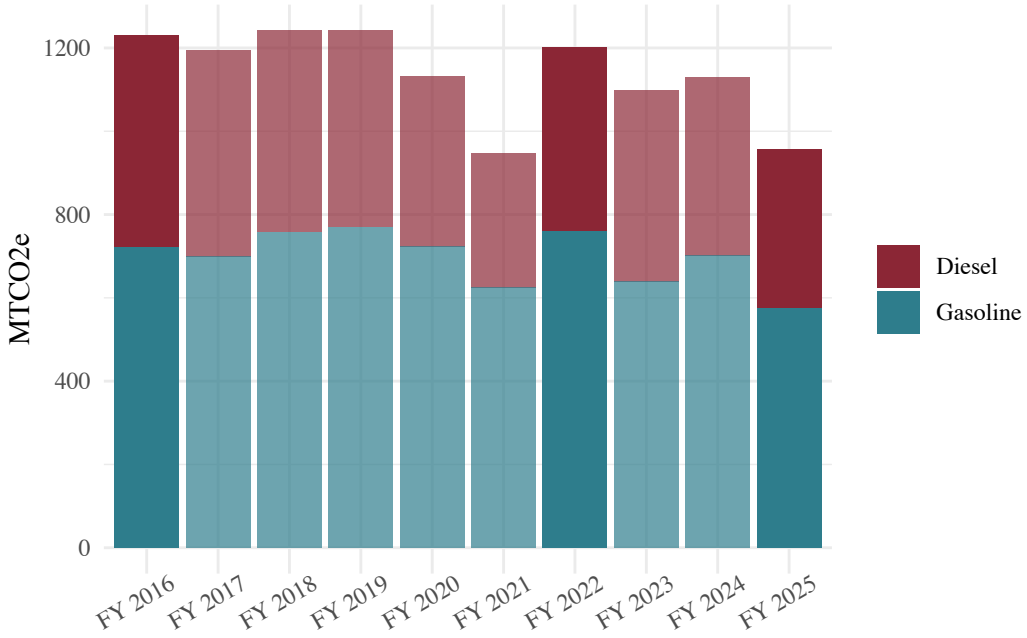


Figure 14: Municipal transportation emissions per year by fuel type.

Transportation Emissions by Fleet Group

96% of transportation-related emissions can be accounted for by the four highest-consumption fleet categories: Public Works, Fire Department, Police Department, and Schools. With the exception of Fire Department vehicles, each of these fleet groups have decreased their emissions since FY 2016.

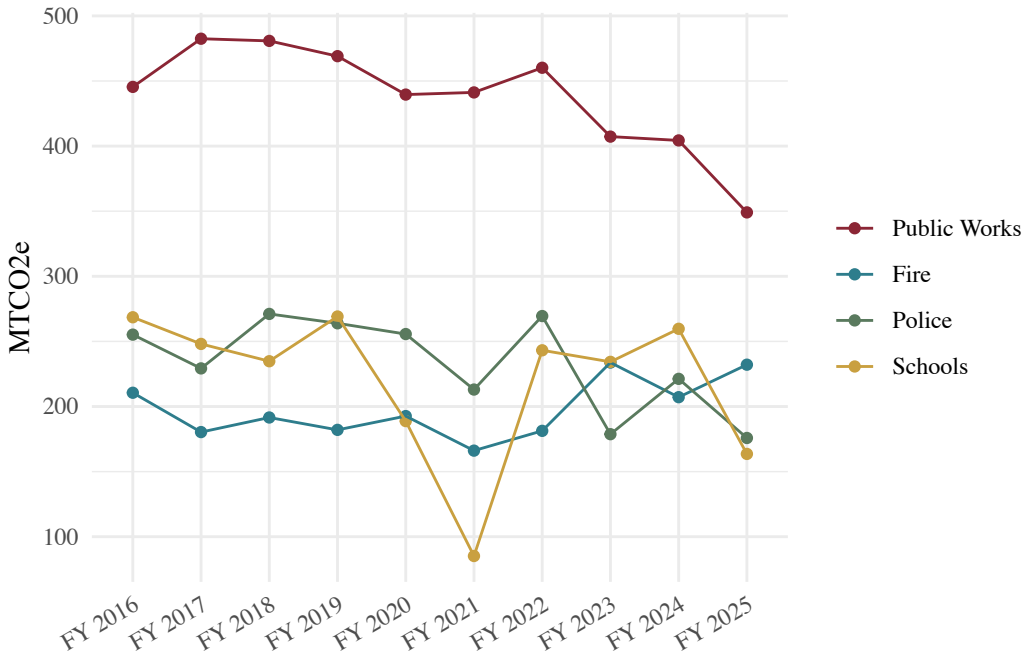


Figure 15: Municipal emissions (MTCO2e) by fleet group over time.

Table 9: Municipal fleet emissions, with percent changes since 2016 and 2022 inventories.

Fleet Group	FY 2016	FY 2022	FY 2025	Δ% 2016	Δ% 2022
Public Works	445.5	460.2	349.1	-21.6%	-24.1%
Fire	210.6	181.3	232.1	10.2%	28.0%
Police	255.2	269.5	175.8	-31.1%	-34.7%
Schools	268.5	243.2	163.6	-39.1%	-32.7%
Conservation	14.8	16.0	15.9	7.2%	-1.0%
Cherry Hill Golf Course	21.0	24.3	9.1	-57.0%	-62.7%

Fire Department Fleet

The increase in emissions from the fire department's vehicle fleet in recent years can be attributed to a policy update, which now sees two vehicles sent to every call. Lindsay Stromgren, the current fire chief, added that the department has also seen an increased call volume in recent years. While emissions have increased, the fire department has made noteworthy efforts to integrate hybrid vehicles into its fleet. The department currently has eight hybrid vehicles, including two fire engines, one ladder truck, and two ambulances that utilize idle-mitigation systems, with two more ambulances that utilize this technology on order. Several of these vehicles were introduced into the fleet in 2025 and may not be fully reflected in the data.The department's policy is to continue to order hybrid vehicles as current vehicles need replacement.

Municipal Key Findings

Key Findings

- Municipal emissions fell by 16.8% from FY 2016 to FY 2025, falling short of the 25% reduction target outlined in the CAARP.
- Stationary energy accounted for approximately 74% of all municipal emissions in FY 2025, and is thus the greatest opportunities for emissions reductions.
- The construction of net zero emissions Amethyst Brook Elementary School should be completed by the end of 2026, replacing Wildwood and Fort River Elementary Schools. These two schools account for 594.5 MTCO2e for FY 2025, so future reports should show a significant reduction in emissions, depending on how the existing buildings are repurposed.
- Transportation related municipal emissions dropped by 22.3% between FY 2016 and FY 2025.
- The Fire Department is the only major fleet group (others groups include Police Department, Public Works, and Schools) that has increased their emissions since 2016, all others reduced emissions. This increase comes as a result of an updated policy sending two vehicles to every call.

Municipal Forecasting

While municipal emissions fell short of the 2025 target, the completion of the ongoing net-zero emissions projects of the Amethyst Brook Elementary School and the Jones Library will likely bring the Town much closer to its emissions reduction goals than the existing data would suggest. The figure below plots the current trend of municipal emissions reduction, while taking into account future drops in emissions from these projects. This model projects 2,427.3 MTCO2e in municipal emissions by 2030, a 45.9% reduction from the 2016 baseline, and 466.3 MTCO2e by 2050, an 89.7% reduction from the baseline. Future emissions will likely be higher than these naive projections, but the current investments in clean energy projects and renovations will certainly make a difference.

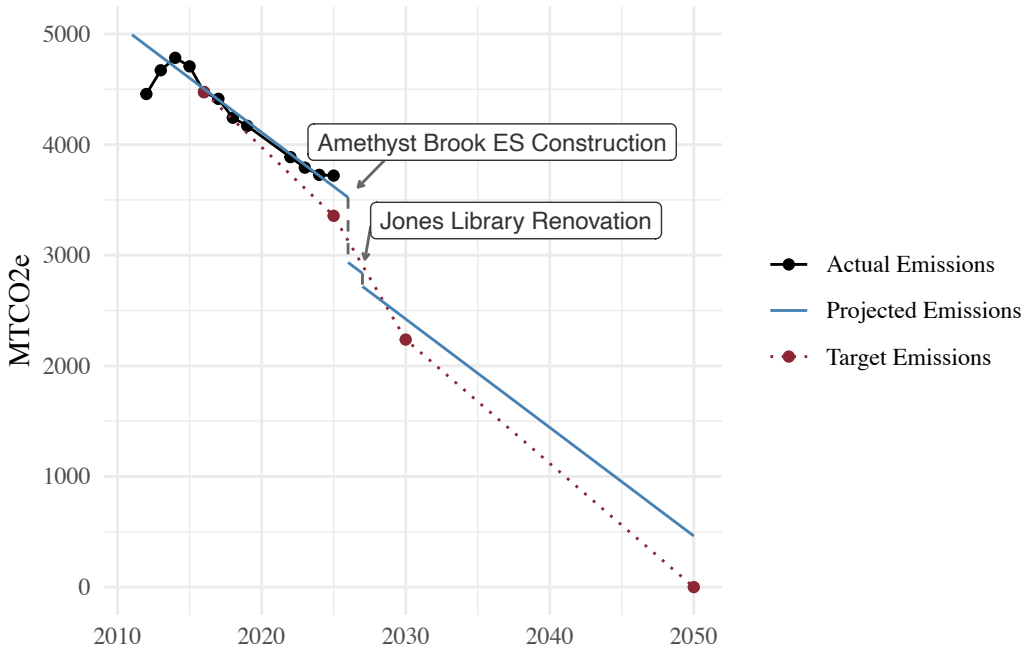
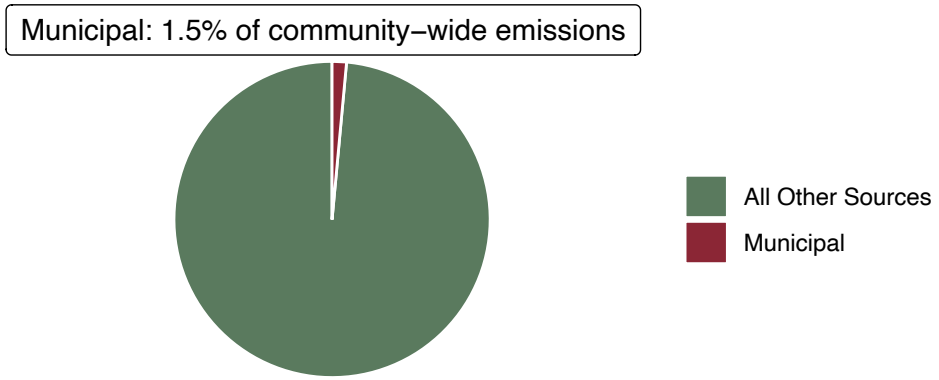


Figure 16: Current trend of municipal emissions reductions, incorporating planned completions of net-zero building projects.

Note: This model assumes that the existing emissions of the buildings that are being replaced will be eliminated entirely, meaning that the buildings will not be repurposed. This model also assumes that emissions will continue to decline at the same rate that they have been in recent years. Data from 2020 and 2021 were omitted.

Municipal Emissions in Context

While it is important to analyze and address municipal emissions, as this is what the Town has direct control over, it is also important to understand the Town's place in the context of broader community emissions. **Municipal emissions only account for about 1.47% of total community emissions.** Since the Town directly controls only a small fraction of emissions, achieving community-wide emissions goals requires action by residents, institutions, businesses, and higher education partners in addition to municipal action.



Community Inventory

Community Overview

Progress to Date

Community-wide emissions have decreased from 292,378 MTCO2e in FY 2016 to 254,608 in FY 2025, a **12.9% decrease**, falling short of the 25% reduction target for 2025.

At present, this does not reflect any reduction in emissions from Amherst College, as that data has not yet been provided for FY 2025. These figures will be updated upon its availability. UMass also has a number of major sustainability projects underway that will lead to meaningful emissions reductions in coming years, which are discussed below. Hampshire College is regrettably set to close after the end of the Fall 2026 semester, which will also lead to a reduction in emissions.

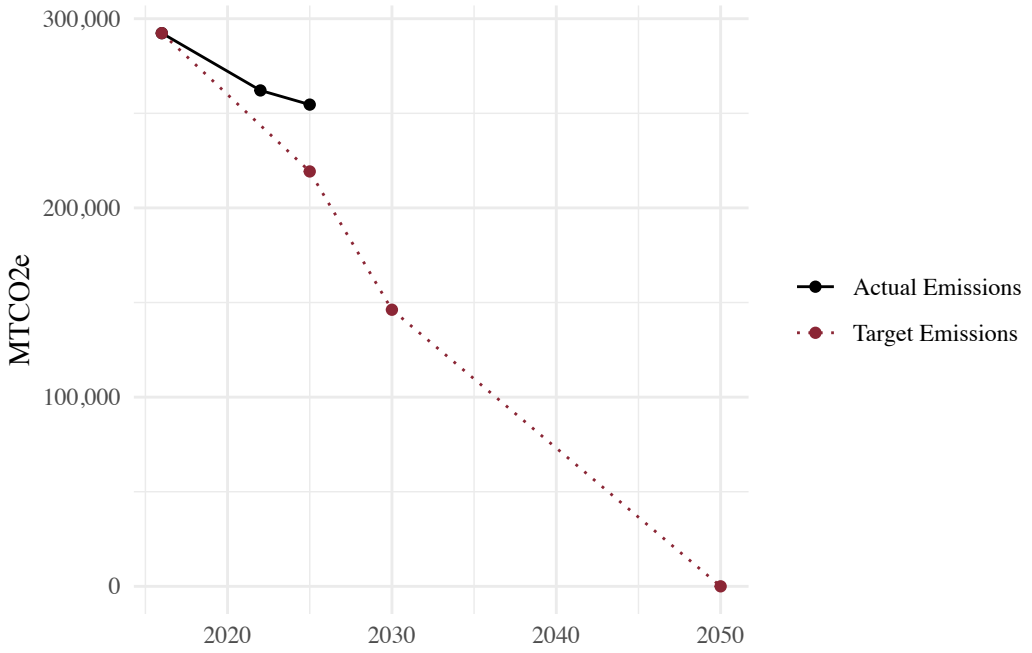


Figure 17: Plot of community GHG emissions (MTCO2e) by reporting year, including emissions targets set by the Town Council.

Table 10: Community GHG emissions by year, along with percentage reductions relative to the 2016 baseline.

Inventory Year	Community MTCO2e	Percent Reduction
FY 2016	292,378	0.0%
FY 2022	262,105	-10.4%
FY 2025	254,608	-12.9%

Emissions by Entity

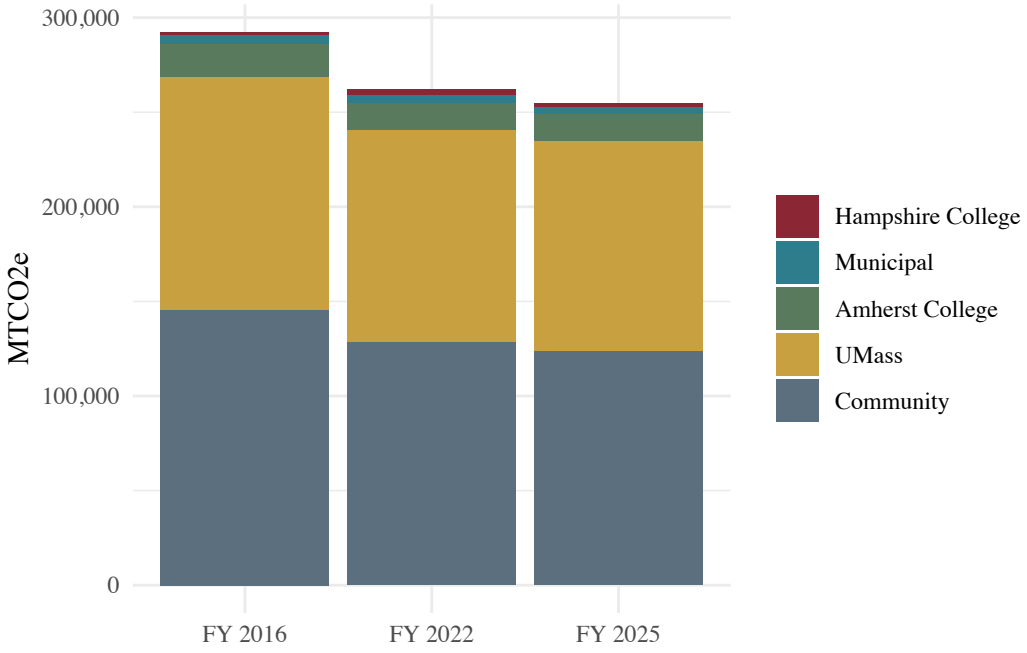


Table 11: Emissions (MTCO2e) per inventory year by entity, along with percent changes from FY 2016 and FY 2022.

Entity	FY 2016	FY 2022	FY 2025	Δ% 2016	Δ% 2022
Community	145,560.1	128,280.6	123,555.4	-15.1%	-3.7%
UMass	122,851.8	112,353.1	111,178.4	-9.5%	-1.0%
Amherst College	17,549.1	14,159.5	13,966.3	-20.4%	-1.4%
Municipal	4,487.6	3,898.4	3,731.9	-16.8%	-4.3%
Hampshire College	1,929.3	3,413.3	2,176.0	12.8%	-36.2%

UMass Amherst

Since UMass accounts for 44% of community-wide emissions in FY 2025, the Town's progress toward its community-wide emissions goals depends on the actions taken by the university. In recent years, UMass has not made significant reductions in its emissions, as emissions in FY 2025 were only 1% lower than in FY 2022. UMass has a number of projects underway that are detailed below, which primarily consist of new building projects and energy infrastructure to service these new projects. These new buildings will be net-zero, but it remains to be seen whether overall emissions will be lowered from existing facilities. Additionally, UMass, as a state organization, is subject to Executive Order 594 which requires them to reduce reduce emissions by 20% in FY 2025, relative to a 2004 baseline, 35% by 2030, and 95% by 2050, along with other intermediary requirements.

- North Energy Exchange Center (NEEC) and Thermal Energy Storage (TES). The NEEC is a ground-source heat exchange system, with a 640-ton heating/cooling capacity with 70 wells at 800ft depth each. The NEEC will provide heating and cooling to the new Computer Science Laboratories and Sustainable Engineering Laboratories buildings, with capacity for future expansion. Estimated 2026 completion.
- Sustainable Engineering Laboratories (SEL) Building: A 78,000 GSF facility designed to be a net-zero carbon facility. Estimated completion is Summer 2026.
- Computer Science Laboratories Building: A 94,300 GSF net-zero facility completed in 2025, to be heated and cooled by the NEEC upon its completion.

- Flint Hall Renovation: The renovation of Flint Hall, a 28,000 GSF facility that will be 100% electric. Estimated completion is Spring 2027.

Emissions by Sector

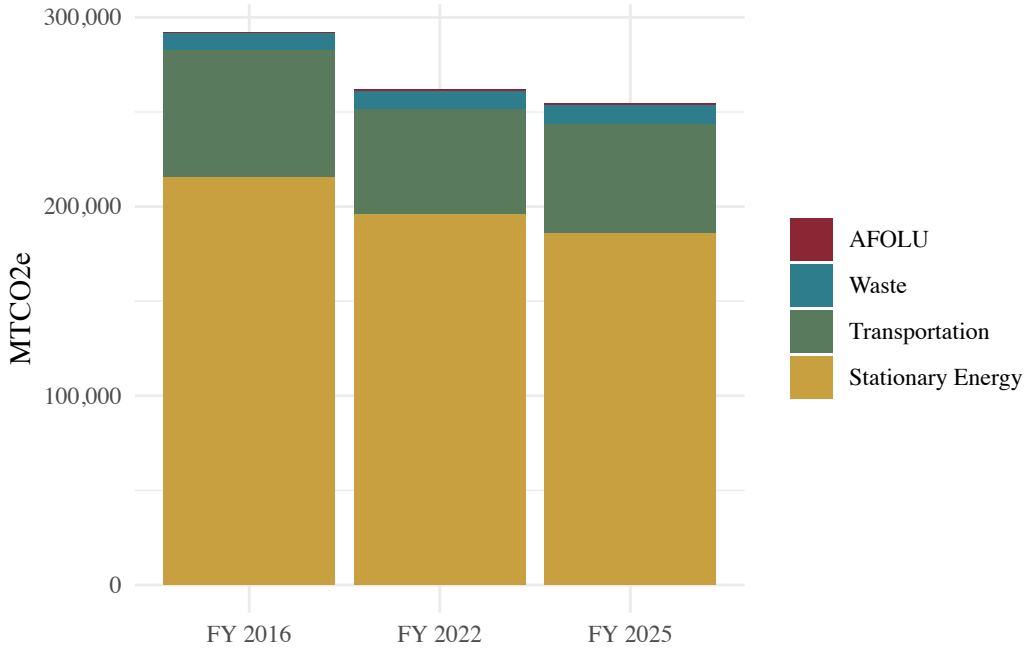


Figure 18: Emissions (MTCO2e) by sector for each inventory year.

Table 12: Emissions (MTCO2e) per inventory year by sector, along with percent changes from FY 2016 and FY 2022.

Sector	FY 2016	FY 2022	FY 2025	Δ% 2016	Δ% 2022
Stationary Energy	215,274.6	195,769.3	185,898.1	-13.6%	-5.0%
Transportation	67,606.8	55,916.4	57,507.3	-14.9%	2.8%
Waste	8,654.3	9,512.6	10,210.9	18.0%	7.3%
AFOLU	842.2	906.6	991.7	17.7%	9.4%

Community Stationary Energy

Community stationary emissions fell from 215,275 MTCO2e in FY 2016 to 185,898 MTCO2e in FY 2025, a **13.6% decrease**.

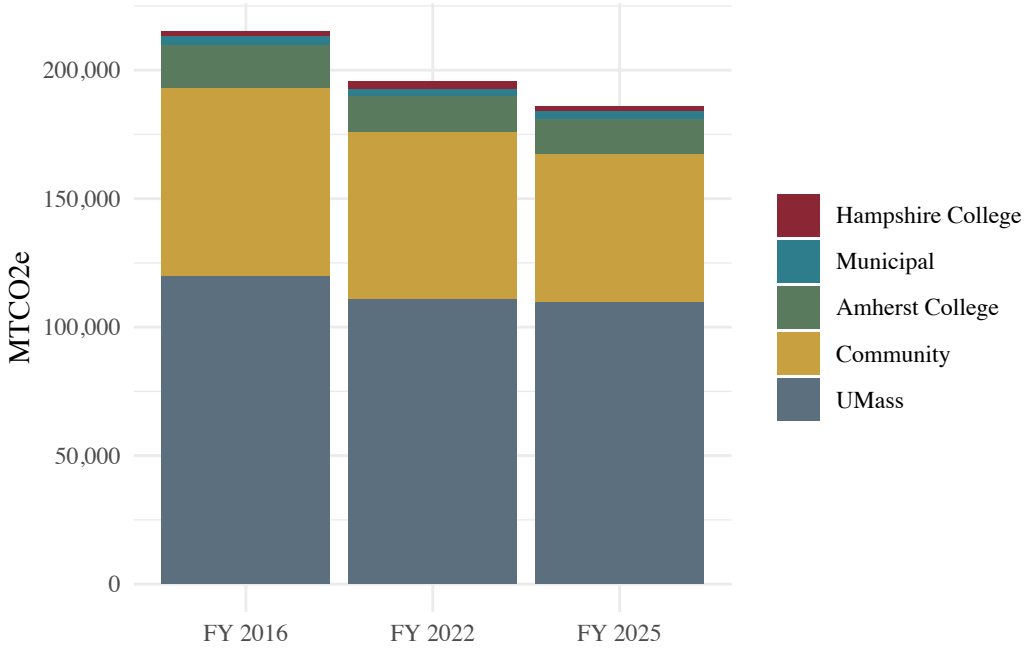


Figure 19: Community stationary emissions by entity and inventory year.

Table 13: Community stationary emissions by inventory year.

Inventory Year	Total MTCO2e	Percent Reduction
FY 2016	215,275	0.0%
FY 2022	195,769	-9.1%
FY 2025	185,898	-13.6%

Emissions by Entity

- Community (non-college) stationary emissions experienced the most significant decreases in emissions. This is primarily due to reduced consumption of natural gas and oil.
- UMass emissions have decreased since FY 2016, but have remained relatively constant since FY 2022. Still, UMass has invested heavily in sustainable infrastructure, discussed previously, and these figures are expected to decrease significantly in coming years once these projects are reflected in the data.
- The current Amherst College stationary figure is a placeholder that will be updated once FY 2025 data is made available. The slight decrease comes from updated emissions factors.
- Hampshire College emissions will go away due to the closure of the college after the Fall 2026 semester. Future emissions depend on if and how their facilities are repurposed.

Table 14: Stationary emissions by entity and inventory year, with percent changes since FY 2016 and FY 2022 inventories.

Entity	FY 2016	FY 2022	FY 2025	Δ% 2016	Δ% 2022
UMass	119,829.8	110,736.0	109,597.6	-8.5%	-1.0%
Community	73,156.2	65,269.3	57,646.3	-21.2%	-11.7%
Amherst College	17,111.3	13,820.2	13,762.0	-19.6%	-0.4%
Municipal	3,248.0	2,690.1	2,770.3	-14.7%	3.0%
Hampshire College	1,929.3	3,253.7	2,122.0	10.0%	-34.8%

Note: Municipal figures differ slightly from previous sections due to minor rounding errors.

Highest-Emission Fuel Types

89.4% of stationary emissions come from natural gas, electricity, and oil fuel consumption. Both natural gas and heating oil have seen significant reductions in consumption in recent years, which has driven the overall decrease in emissions. Electricity consumption has remained relatively constant. This is consistent with a broad transition away from high-emission fuel sources and toward renewable energy.

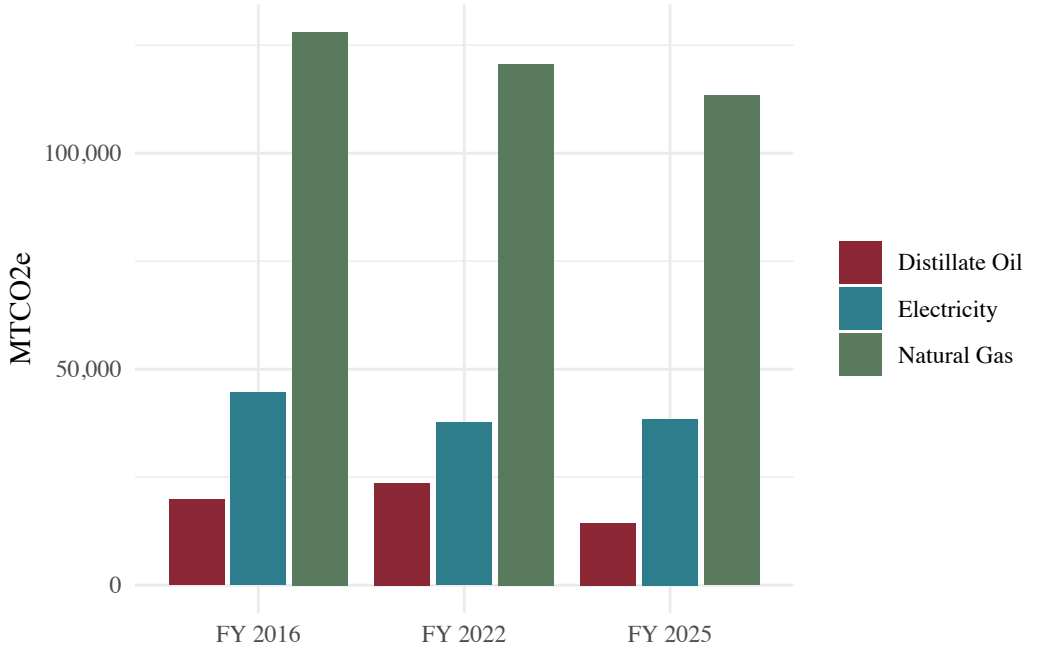


Figure 20: Emissions (MTCO2e) from natural gas, oil and electricity

Non-College Community Emissions

The previously-discussed trend in the mix of fuel usage is especially true among non-college community emissions. In FY 2022, emissions from natural gas consumption fell below those for electricity consumption, and this gap has only widened since.

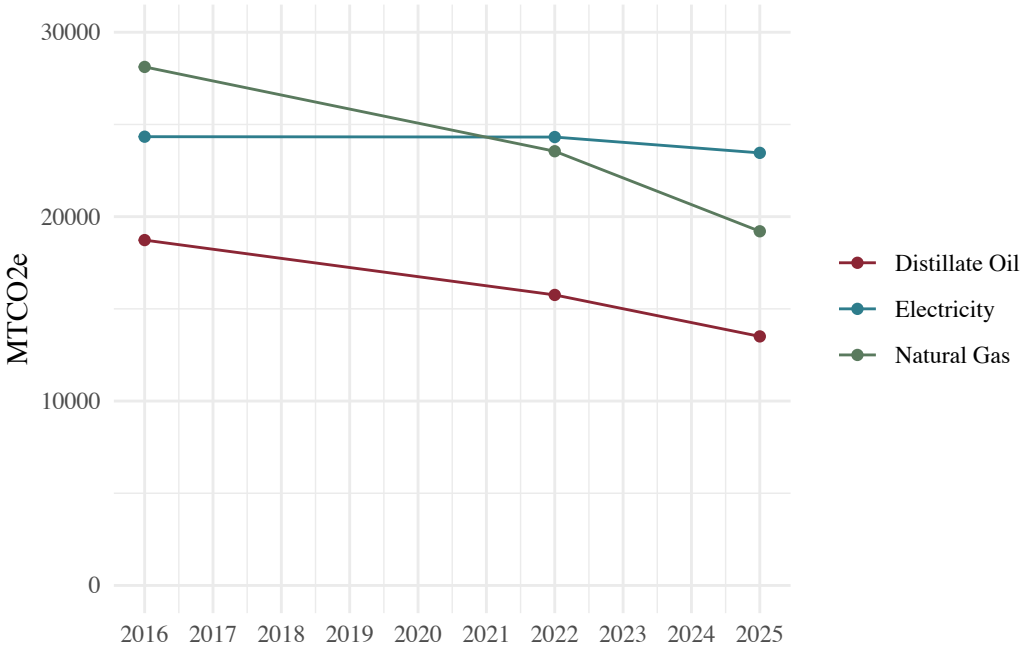


Figure 21: Community (non-college) emissions by fuel type.

Resident Heating Oil Consumption

Emissions related to residential heating oil have fallen from 18,729 MTCO2e in FY 2016, to 13,506 MTCO2e in FY 2025, a 28% decrease. Despite an increase in households, the percentage of households using heating oil fell from 32% in FY 2016 to 24% in FY 2025, which accounts for the decline in emissions. These are regional estimates, not specific to Amherst.

Inventory Year	Total MTCO2e	Percent Reduction
FY 2016	18,729	0%
FY 2022	15,755	-16%
FY 2025	13,506	-28%

Community Transportation

Overall Trends in Transportation Emissions

Emissions related to transportation fell from 67606.8 MTCO2e in FY 2016 to 57507.3 MTCO2e in FY 2025, a **14.9% decrease**. While there has been a reduction in emissions since FY 2016, there has actually been an increase in emissions since FY 2022. This is due to an increase in the estimated FY 2025 total miles driven in Amherst by the Massachusetts Vehicle Census.

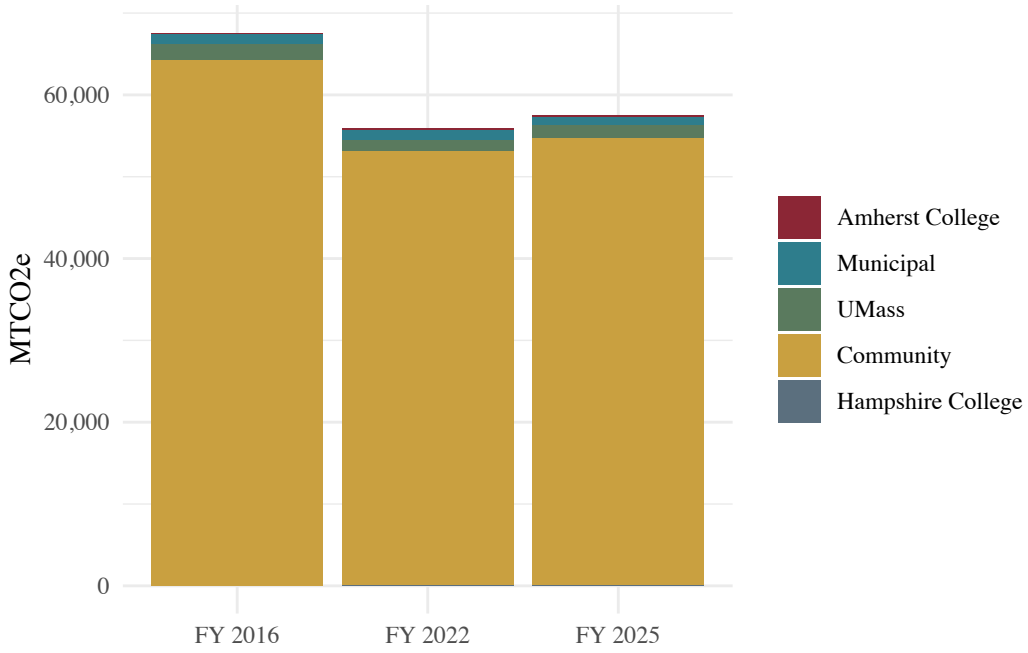


Figure 22: Community transportation emissions by entity and inventory year.

Table 15: Community transportation emissions by inventory year.

Inventory Year	Total MTCO2e	Percent Reduction
FY 2016	67,607	0.0%
FY 2022	55,916	-17.3%
FY 2025	57,507	-14.9%

Emissions by Entity

The primary source of transportation emissions are coded as "community" emissions, rather than being attributed to any one of the colleges. Emissions related to the colleges reflect only institutional fleet operations like buses, maintenance and service vehicles. Personal travel and commuting by students and faculty are not reflected by these figures. Personal driving by affiliated individuals living in Amherst is instead absorbed by the "community" totals.

The current Amherst College transportation figure is a placeholder that will be updated once FY 2025 data is made available.

Table 16: Transportation emissions by entity and inventory year, with percent changes since FY 2016 and FY 2022 inventories. 2016 Hampshire College direct transportation data was not available.

Entity	FY 2016	FY 2022	FY 2025	Δ% 2016	Δ% 2022
Community	64,282.4	53,069.8	54,706.5	-14.9%	3.1%
UMass	1,860.4	1,339.8	1,580.9	-15.0%	18.0%
Municipal	1,239.6	1,208.3	961.6	-22.4%	-20.4%
Amherst College	224.4	204.3	204.3	-9.0%	0.0%
Hampshire College	NA	94.2	54.0	NA	-42.7%

Community Waste

Waste Emissions Over Time

Unlike stationary and transportation emissions data, which is derived from utility and fuel records, waste emissions are largely estimated using modeling approaches and secondary datasets. For example, the models used to produce these figures rely on nation-wide averages of per-capita waste generation and state-wide disposal methods, which may not be accurate for the Town of Amherst. These figures are meant to provide a low resolution estimate of waste-related emissions for the Town, but any stronger conclusions should be weighed against the quality of the data.

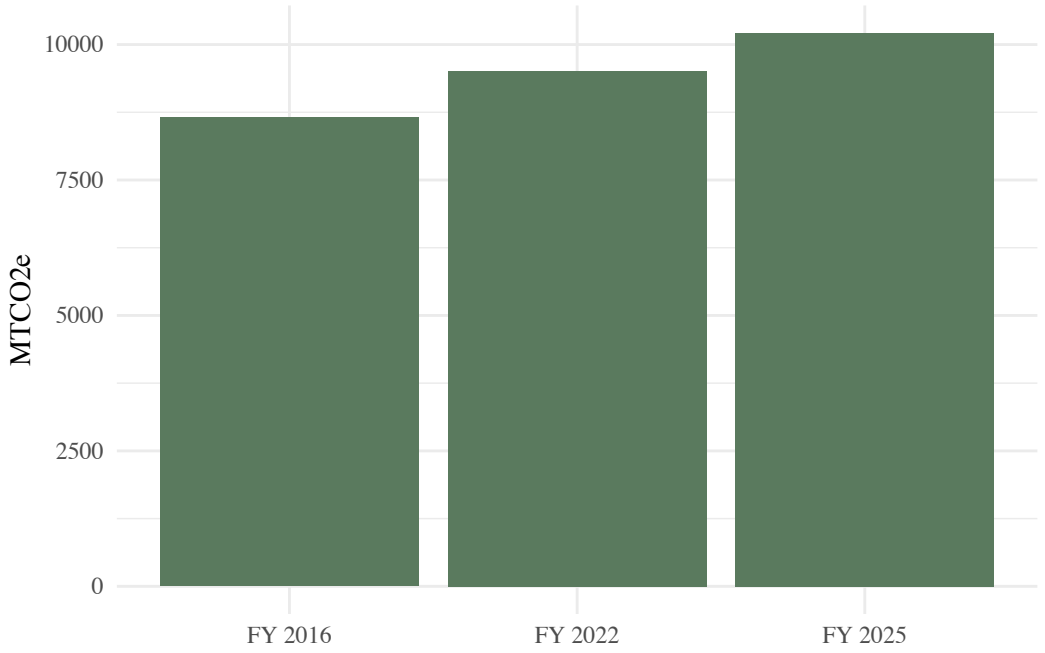


Figure 23: Waste emissions (MTCO2e) over time.

Inventory Year	Total MTCO2e	Percent Change
FY 2016	8,654	0.0%
FY 2022	9,513	9.9%
FY 2025	10,211	18.0%

Community Agriculture

Agriculture, Forestry and Other Land Use (AFOLU) Emissions

AFOLU emissions, like waste, are largely modeled and derived from secondary data sources, so these figures should be viewed as low-resolution indications of emissions rather than precise measurements. The emissions reported here mostly have to do with livestock and crop fertilization. The current data suggests a steady but relatively modest increase in emissions related to livestock and agriculture, which may well be the case. When interpreting this information, it is important to keep in mind the uncertainty of the data, the fact that these emissions account for less than a single percentage point of overall community emissions, and the lack of policy implications.

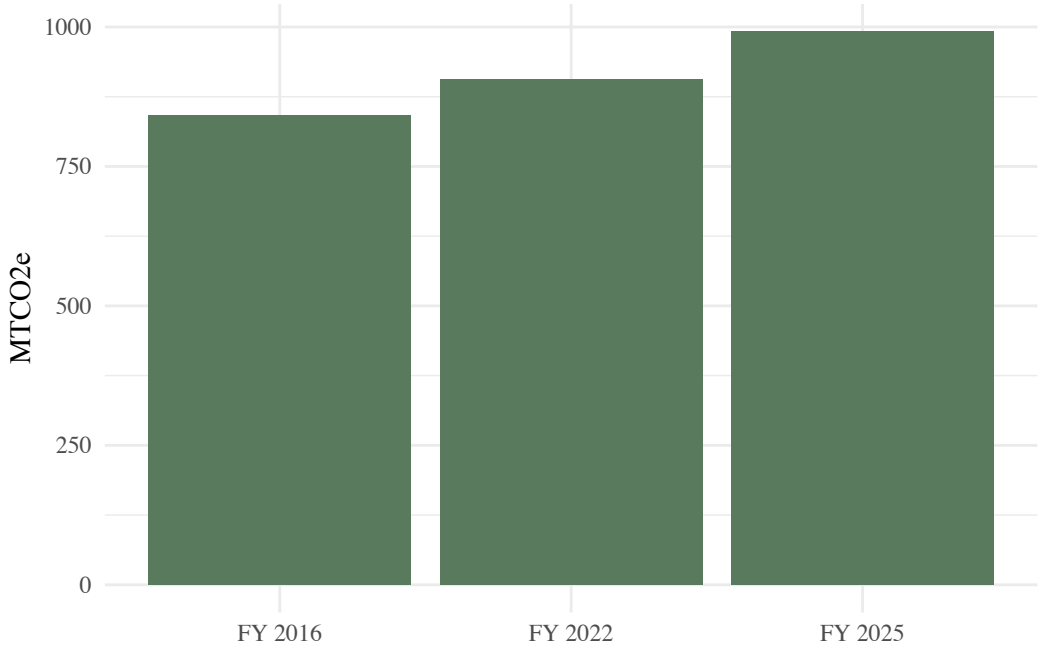


Figure 24: AFOLU emissions (MTCO2e) over time.

Inventory Year	Total MTCO2e	Percent Change
FY 2016	842	0.0%
FY 2022	907	7.6%
FY 2025	992	17.7%

Final Summary

Overall Progress

Both community and municipal emissions decreased since 2016 but fell short of the 25% reduction target.

- The municipality experienced a **16.8%** reduction in emissions since 2016. Stationary energy accounts for the large majority of emissions (74.4%), and thus the greatest opportunity for further reductions.
- Overall community experienced a **12.9%** reduction in emissions since the 2016 baseline. Much of this reduction was driven by a transition away from non-renewable fuels by the non college affiliated community. These emissions depend heavily on higher education partners and their own sustainability programs.

Entities

- Municipal emissions are a small fraction of the community total, but the Town has direct control over these activities making it the most actionable lever. It is important that the Town leads by example in emission reduction efforts.
- UMass is the largest single entity, which has experienced only a modest decrease in emissions so far. UMass has a number of major sustainable projects underway (NEEC, net zero facilities), but these projects serve new buildings, and it remains to be seen whether these projects will serve to reduce existing emissions, or simply prevent increases.
- Amherst College has not yet provided data for FY 2025 emissions.
- Hampshire College emissions will be eliminated upon the institution's closure. Future emissions depend on if and how their facilities will be repurposed.

Limitations

- Carbon accounting is an evolving field, and the methodology changes regularly. This report focused on maintaining consistency between reporting years, so that changes in emissions figures can be attributed to actual changes in emissions, rather than updates in methodology. Future reports may take other variables into account, other potential sources of emissions, or adopt different processes for emissions calculations that reflect the latest methodologies.
- 2025 Amherst College data has not yet been provided, and this report will be updated once it is made available.
- Much of the community emissions data is modeled, often relying on statewide or even nationwide assumptions that may not be precise for Amherst specifically. Carbon accounting, especially at the community level, necessarily relies on these kinds of assumptions as precise data is often unavailable.

Looking Forward

There are a number of sustainable and net-zero projects currently underway, both at the municipal level and the broader community level. The Amethyst Brook ES construction (completion ~2026) and the Jones Library renovation (2027) will eliminate a substantial share of municipal emissions. With these projects and their estimated emissions reductions factored in, projected municipal emissions in 2030 come much closer to the 50% reduction target than before.

Since UMass contributes about 44% of overall emissions, the community's progress toward net-zero emissions relies heavily on actions taken by the university.

Achieving 50% community-wide reduction by 2030, and net zero emissions by 2050, will require action beyond municipal operations. Residents, businesses, and higher education partners will all have to play their part and continue

to reduce emissions. Fortunately, there already has been serious, large-scale investment by both the municipality and community partners to work toward these goals.