



# 2024 Data Report

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## Yarmouth Climate Action Plan

June 2025





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## Introduction

When residents, visitors, and workers engage in daily activities we typically use energy that is created by burning fossil fuels, such as oil and gas. Burning fossil fuels creates greenhouse gas emissions (GHGs) that add to the already high levels of GHGs in the atmosphere and contribute to climate change.

The Yarmouth Town Council has set ambitious targets to reduce community-wide emissions 80% by 2030 and reach net-zero by 2050. The Council adopted a Climate Action Plan (CAP) that lays out a pathway to achieve these targets by accelerating the transition away from fossil fuels in transportation and buildings, minimizing waste, promoting energy efficiency, and maximizing local and resilient renewable energy.

Accounting for GHG emissions that Yarmouth is responsible for is not a perfect science and includes data estimates from modeling and representative samples ('low-quality' data). Rather than relying on emissions data to track progress towards our goals, the Town can examine 'high-quality' data for actual energy consumption and Yarmouth-specific trends. Tracking energy trends is only one piece of the picture but it can help us identify our biggest opportunities to reduce fossil fuel-based GHGs. The following report is a summary of data gathered by the Sustainability Department to illustrate trends since the CAP baseline of 2019.

## Takeaways from the Data



Emissions and mileage from in-town transportation is **increasing** but there are **more EVs on the road**.



Commercial **electricity use is decreasing**, and **residential electricity use is stable** despite a rise in business activity and home electrification.



Total tons of waste **dropped 20% since 2019** and recycling is increasing, pointing to successful waste diversion efforts.



Municipal and school energy and fossil fuel use has **increased**.

It's important to keep in mind that the town grows and changes over time. With increased economic and residential activity - that likely means more driving, more power and fuel to heat and cool buildings, and more need for municipal and school services. Most of these activities currently rely on fossil fuels, so we will need to shift these sectors to zero emissions over time to reduce GHGs as our community grows.

# Buildings

Fossil fuels are used to power, heat, and cool our homes and businesses. Although Maine’s electricity grid is powered more and more by renewable energy, almost half of our electricity is generated by burning fossil fuels, according to the State’s updated Climate Action Plan (2024). The primary strategy for reducing fossil fuels used in buildings is to power those buildings with electricity (which can be generated from renewable sources). To understand how our community is reducing fossil fuels in the building sector, we can look at trends in energy consumption and indicators that show our community is electrifying and installing local clean energy.

Since 2019, natural gas consumption has remained steady despite approximately a 20% increase in utility accounts. While natural gas is less emissions-intensive than fuel oil, it is still a fossil fuel and contributes to climate change.



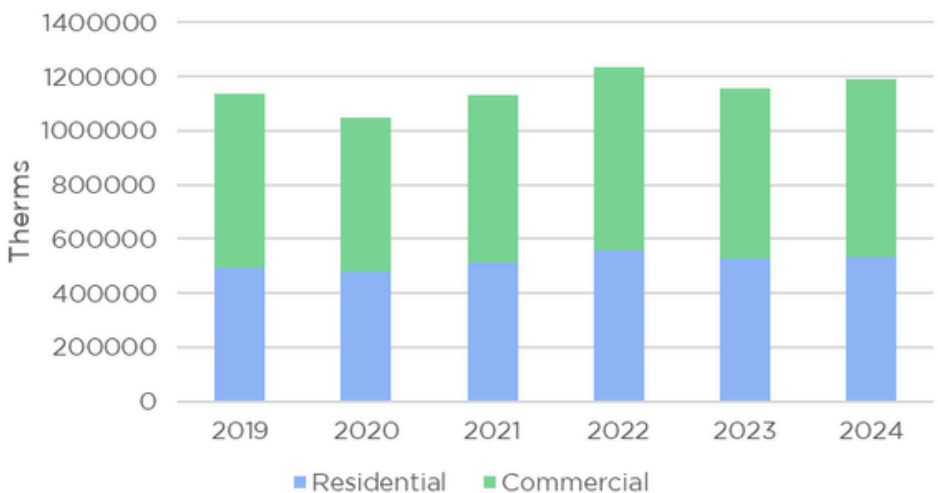
of solar capacity was added to Yarmouth homes in 2023 and 2024 (from permit data). That’s equivalent to powering 50 homes throughout the year.



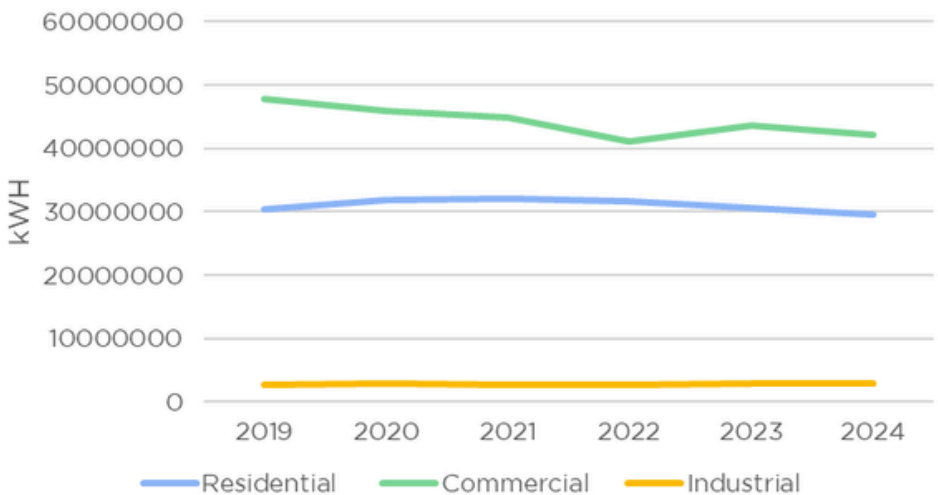
electrical permits issued for residential heat pumps in 2024. According to Efficiency Maine, those installations are equivalent to powering 83 homes.

Commercial electricity consumption has decreased over time (despite rise in business activity in town)<sup>3</sup> while residential usage has remained relatively flat. Yarmouth homes and businesses are installing more electric heating systems every year, so an increase in electricity consumption could be expected in the coming decade. Although a greater percentage of Maine’s electricity will come from renewable sources, it will be important to continue gains in energy efficiency and increases in renewable generation.

**Community Natural Gas Consumption**<sup>1</sup>



**Community Electricity Use**<sup>2</sup>



<sup>1</sup> Data from Summit Natural Gas

<sup>2</sup> Data from Central Maine Power (CMP)

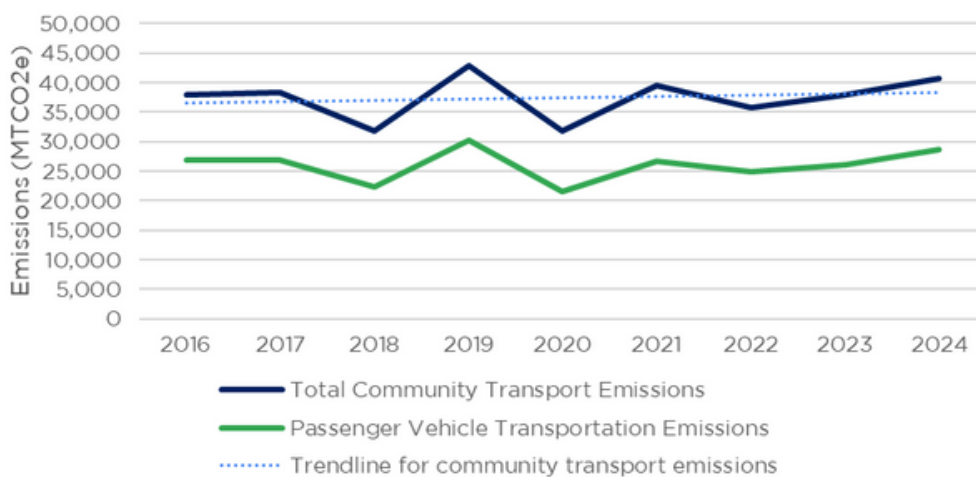
<sup>3</sup> Maine Center for Workforce Research and Information, Quarterly and Annual Employment and Wages

# Transportation

Gasoline and diesel used for residential and commercial vehicles on the road in Yarmouth are a major source of community fossil fuel use. Passenger vehicles consistently account for majority of the total fuel use in this sector, as well as the majority of total vehicle-miles traveled. Emissions per mile in 2024 are marginally lower than 2016. Vehicle registration has fluctuated in the past few years, but 2019 and 2024 are similar in number, about 8,700 registered vehicles.

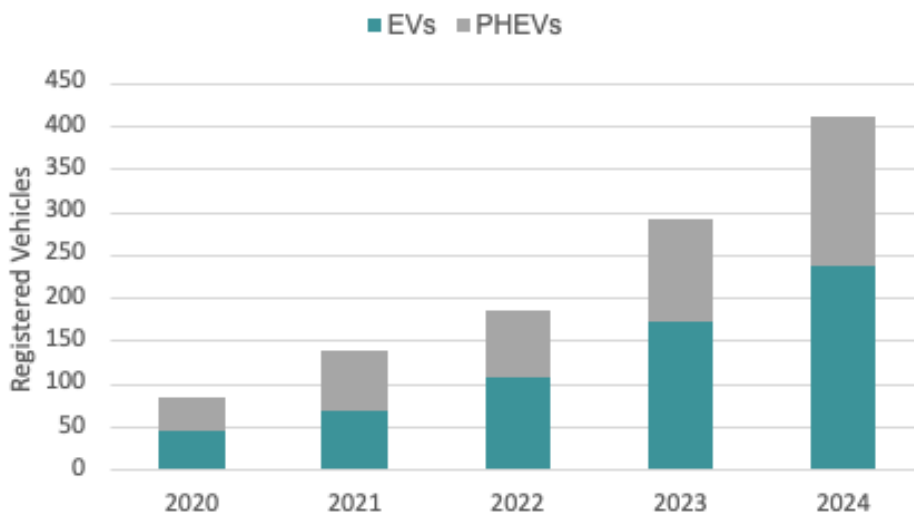
While exact gasoline and diesel consumption is not available, this report highlights modeled transportation emissions and mileage estimates. This ‘medium-quality’ data is available for all Greater Portland communities and is readily accessible to the Town.<sup>4</sup>

**Community Transportation Emissions<sup>5</sup>**



Emissions from transportation have fluctuated but appear to be trending up. The emissions trend for transportation mirrors the picture of our total vehicle-miles-traveled, or ‘VMT’, which has increased by about 8 million miles since 2016.<sup>6</sup>

**EVs Registered in Yarmouth<sup>7</sup>**



There are more electric vehicles (EVs) and plug-in hybrid electric vehicles (PHEVs) on the road in Yarmouth, and more public chargers available, too. While EVs and PHEVs only represent a small number of all registered Yarmouth vehicles (about 5% in 2024), the increase over time has been steady. The Town installed 6 charging ports in 2023, doubling the number of public chargers available to residents and visitors.

<sup>4</sup> The software producing this dataset, StreetLight, uses location data from smartphones and connected vehicles to assess travel patterns.

<sup>5,6</sup> Transportation emissions data for additional years was gathered from the ORT Emissions Dashboard, developed and updated by GPCOG, using StreetLight data. The year 2023 is an estimate because data is unavailable. VMT is also reported on this Dashboard.

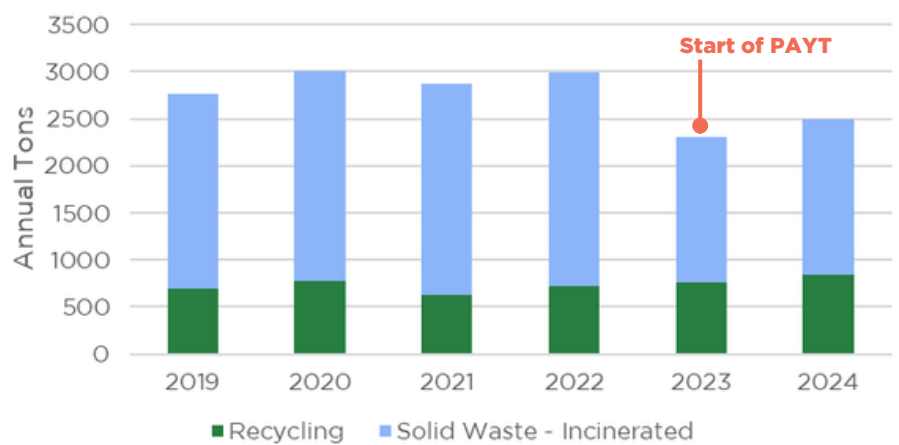
<sup>7</sup> EV and PHEV registration data was gathered from the Maine DEP Vehicle Emissions and Greenhouse Gas Data sheets.

# Waste

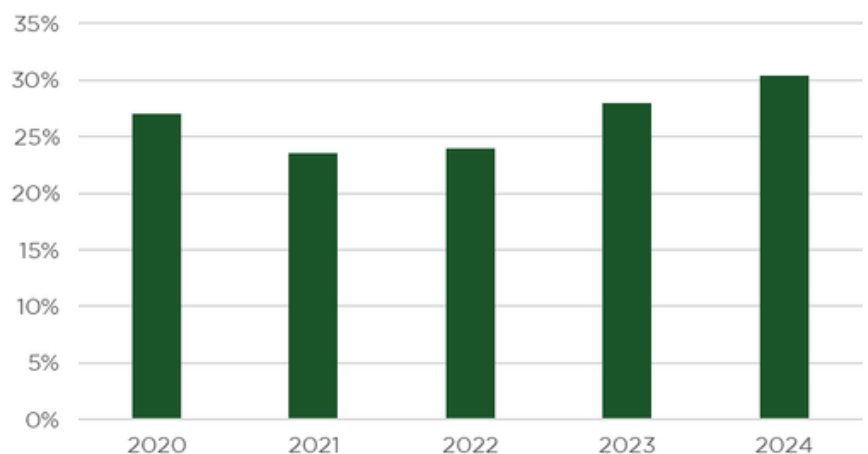
The way we buy, use, and dispose of materials has impacts beyond the trash or recycling bin. Every time something is thrown away, we end the life cycle of the natural resources and energy used to create that product - resulting in the release of embodied carbon. Our linear economy also means more fossil fuels will be burned to manufacture, transport, and store goods we will buy to replace items we toss. To assess progress in reducing fossil fuels connected to our consumption and waste, we can look at trends for recycling and composting (i.e., diversion) and total waste produced in Yarmouth.

Compared to 2019, there was a 20% decrease in tons of incinerated waste and an increase in tons of recycling. During that timeframe, the Transfer Station was renovated to be more efficient, more food waste options were added (through AgriCycle), and the Town implemented a Pay as You Throw (PAYT) blue bag system in aimed to incentivize diversion and reduce total waste.

Recycling and Trash Produced<sup>8</sup>



Single Sort Recycling Rate<sup>9</sup>



Another way we can see the positive trend in waste is through the 'diversion rate' which is the percentage of waste diverted from incineration to be recycled. Yarmouth's diversion rate for single-sort materials has increased since 2020.

The State has a long standing goal to divert 50% of recycling and composting from incineration or landfill. Maine's overall diversion rate has been hovering at 34%.<sup>10</sup>

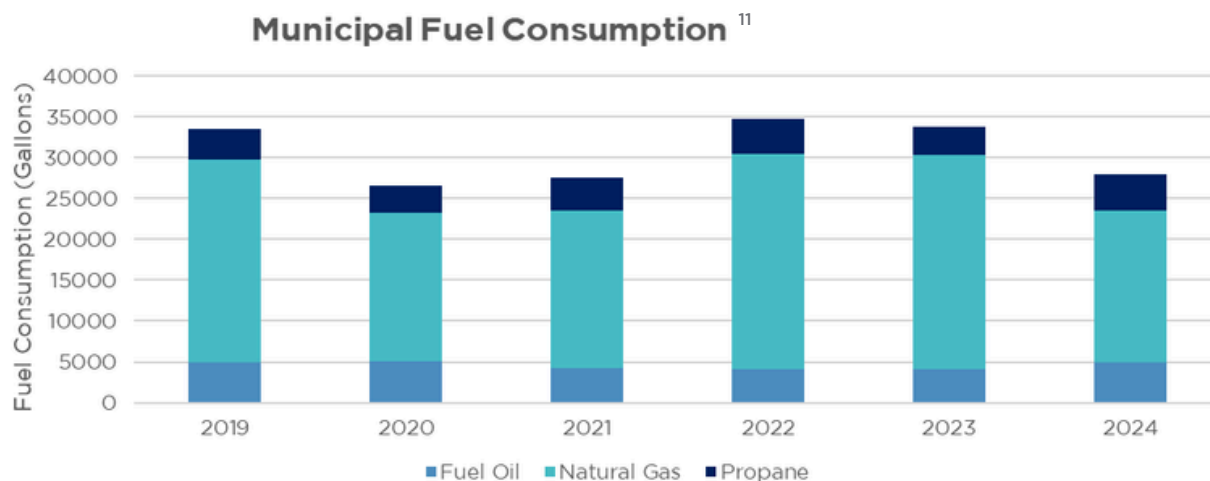
<sup>8</sup> Tonnage of waste and recycling is from the Public Works Department

<sup>9</sup> Recycling rate is reported from ecomaine.

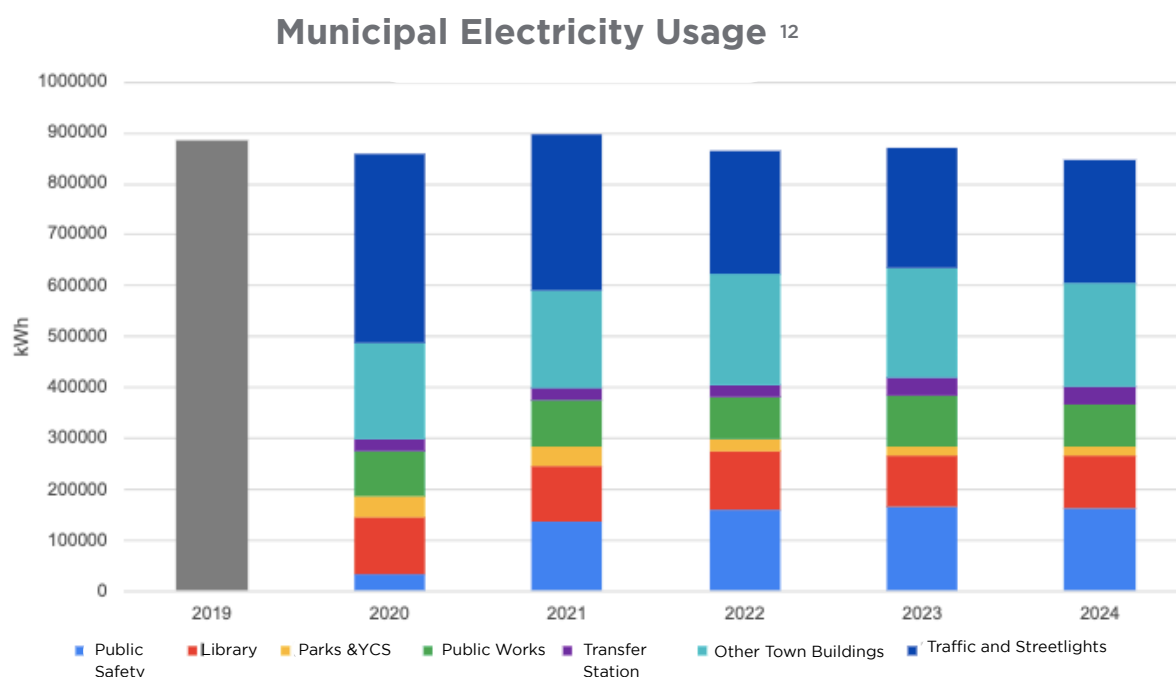
<sup>10</sup> Maine DEP; Reduce, Reuse, Recycle website

## Municipal Buildings

The largest source fossil fuel consumption for Municipal buildings is natural gas, which heats the majority of town-owned facilities. Several buildings use fuel oil or propane which have remained relatively stable over the past few years, while natural gas consumption has fluctuated. Heating fuel consumption may fluctuate due to winter conditions.



Municipal electricity consumption has remained relatively steady over the past few years. Notably, electricity required for streetlights has decreased because most of the lights have been switched to energy-efficient LEDs. Since nearly all of the streetlights have been switched, we can see the consumption steadying. The only significant facility-level increase in electricity consumption is at the Public Safety building, which was reconstructed and expanded in 2021.

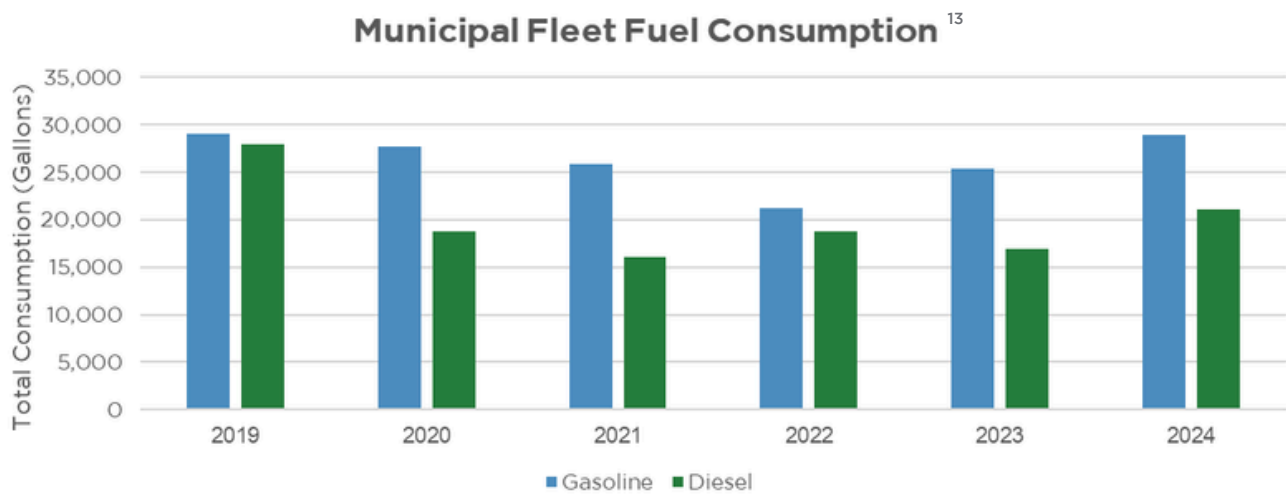


In the 2019 GHG inventory, municipal electricity consumption and natural gas usage was not broken out by facility, so 2019 data is for scale and represents total consumption across department facilities.

<sup>11, 12</sup> Energy consumption data from Town records from utility providers.

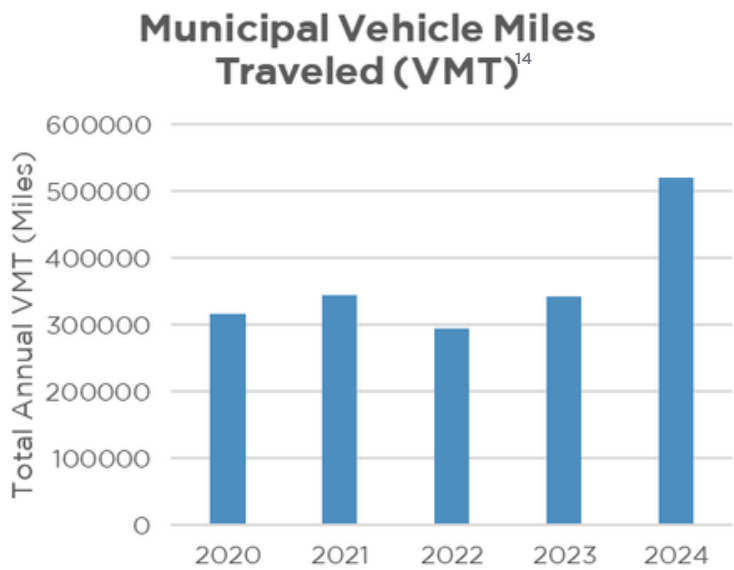
# Municipal Fleet

In Municipal operations, gasoline and diesel used to operate the fleet of roughly 70 vehicles are the other major sources of fossil fuel consumption - and associated GHG emissions. Vehicles in the fleet use gas (39) or diesel (32), depending on what they are used for (plowing, highway maintenance, police cruisers, etc.).



Over the past several years, fuel consumption for the municipal fleet has fluctuated. While gasoline consumption in 2024 is comparable to 2019, diesel use dropped significantly by comparison (by about 7,000 gallons). Total vehicle miles traveled (VMT) for the fleet has also fluctuated.

Where appropriate, switching to electric or hybrid vehicles can save on fuel and maintenance costs - as well as reduce emissions. As of 2024, the Town operates three all-electric vehicles for staff use and six hybrids in the Police Department fleet.



Before 2020, VMT information was not regularly tracked, so accounting may be inaccurate.

<sup>13, 14</sup> Vehicle fuel consumption and mileage (VMT) data is tracked by the Public Works Department.



# School Buildings

In School Department operations the majority of fossil fuel use is natural gas used to heat School buildings. In terms of consumption, building fossil fuel use is much higher than fossil fuels used for operate the School fleet.

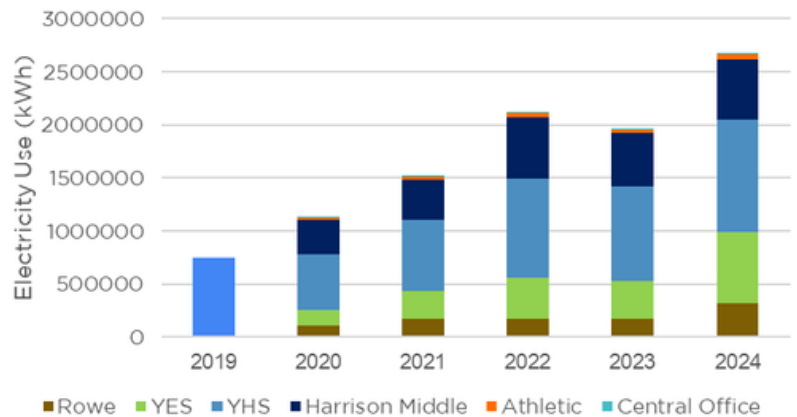
Over time, fuel and power consumption have fluctuated at the School Department, across years and at specific facilities. Between 2019 and 2024, multiple school facilities were renovated and expanded which can account for some of the increase in energy and fuel.

Electricity consumption across the School Department has risen in recent years at nearly every facility, with a significant overall increase since 2019 of about 2 million kWh. During this time, K-12 enrollment has remained relatively steady.

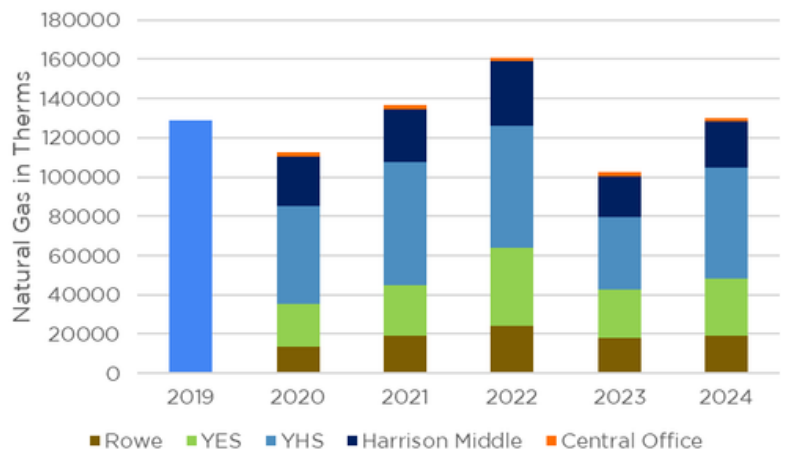
In recent renovations, the schools switched from heating oil to a dual-fuel heating system. Since then, natural gas is now the predominant heating fuel.

As a heating fuel, natural gas consumption is partially tied to outdoor temperatures. The winter of 2023-24 was the second warmest on record in Maine, which could explain the relative drop in natural gas consumption that year.

**School Electricity Consumption<sup>15</sup>**



**School Facility Gas Consumption<sup>16</sup>**

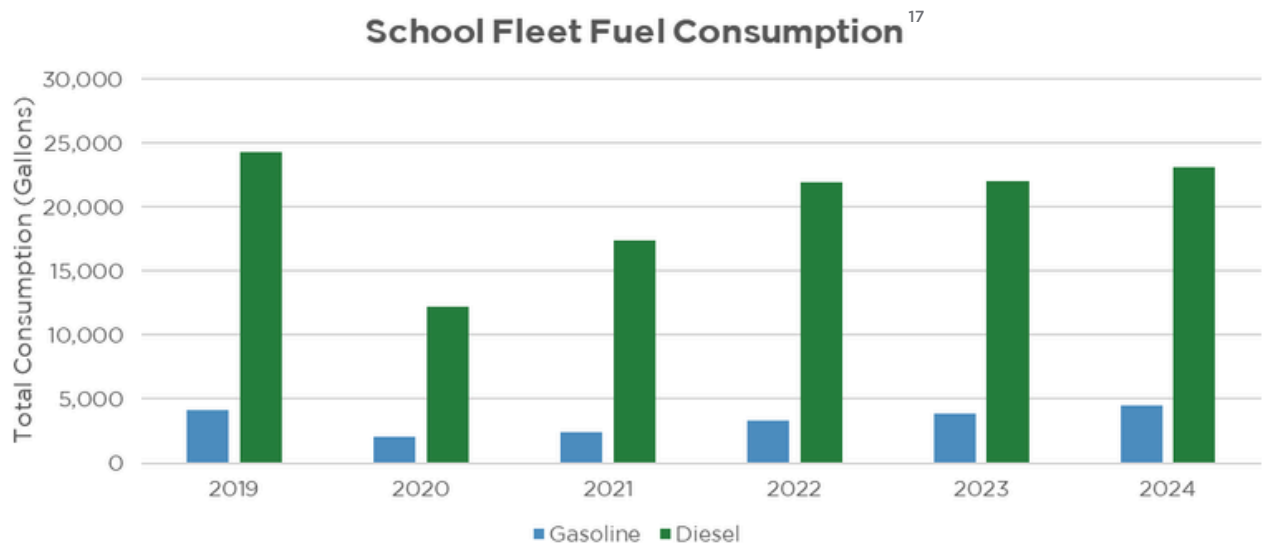


In the 2019 GHG inventory, School natural gas and electricity consumption was not broken out by facility, so 2019 data is for scale and represents total consumption across department facilities.

<sup>15, 16</sup> Facility consumption data gathered from utility providers.

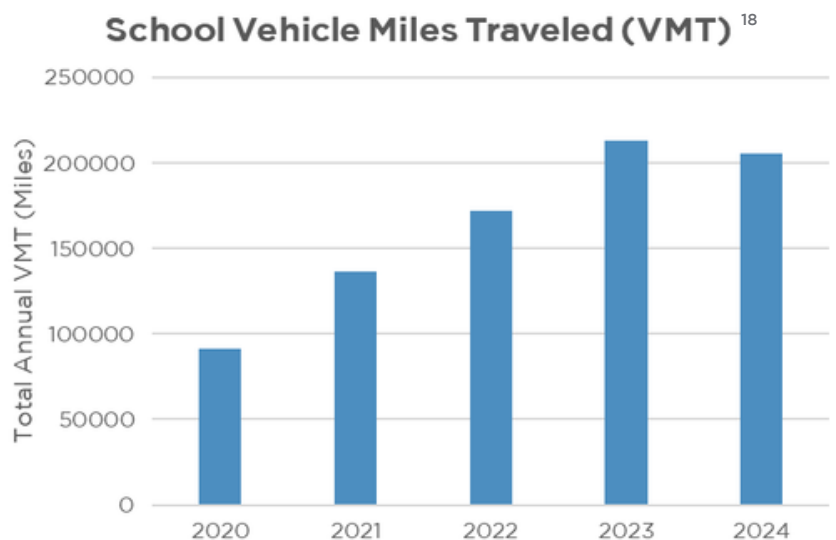
## School Fleet

In School Department operations, the majority of fleet vehicles rely on diesel, including school buses. Fuel consumption for the school fleet has fluctuated, presumably in part to pandemic transport irregularity. The baseline year of 2019 and the most recent year of data (2024) are relatively similar in terms of both gasoline and diesel fuel usage - with slightly less diesel consumption in 2024.



The changes in fuel consumption correspond to the total vehicle miles travelled (VMT) for the fleet, which fell sharply in 2020 and has risen over the past few years.

The School District acquired two electric school buses in 2021, which have been inoperable due to manufacturer issues. Other school districts in Maine and around the country have had better luck with buses from other manufacturers, creating a model for future fleet electrification options.



Before 2020, VMT information was not regularly tracked, so accounting may be inaccurate.

<sup>17, 18</sup> Vehicle fuel consumption and mileage (VMT) data is tracked by the Public Works Department.

# Modeling GHG Emissions

Modeling GHG emissions involves using best-available data, but it's not an exact science. It focuses on long term trends rather than exact emissions numbers. As noted above, some data sources included in emissions accounting are based on estimates - and are considered 'low-quality'. While the primary focus of this report is on trends of 'high-quality' measurable activity data and 'medium-quality' transport emissions data, it is still a valuable exercise to model all emissions for 2024 to compare with the baseline year of 2019. The GHG inventory update for 2024 detailed in the following pages identifies emission sources in Yarmouth and estimates their quantities. The 2024 emissions inventory follows the same protocol as the 2019 inventory.<sup>19</sup>

## Community-wide GHG Emissions in 2024

### EMISSIONS BY SECTOR

In Yarmouth, the majority of 2024 emissions (51%) come from the use of electricity and heating fuels for residential and commercial buildings. Transportation is the second-largest sector of emissions (43%). Solid waste makes up the majority of remaining emissions (6%). This is essentially the same breakdown as 2019.



**10.5 MTCO<sub>2</sub>e  
per capita**

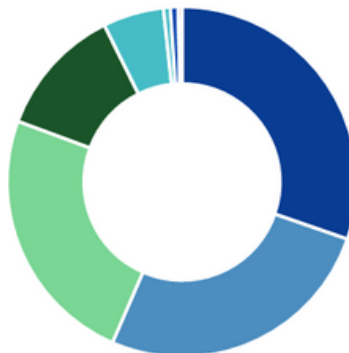
### EMISSIONS PER CAPITA

2024 GHG emissions correspond to 10.5 MTCO<sub>2</sub>e per capita, a reduction of less than 1% since 2019. Keep in mind this inventory data provides an estimate for the emissions at the community-wide scale and is not a realistic picture of emissions per person.

### COMMUNITY-WIDE EMISSIONS

#### EMISSIONS BY SECTOR

30% Passenger Vehicles  
26% Residential Buildings  
24% Commercial Buildings  
12% Commercial Vehicles  
6% Solid Waste Processing  
<1% Public Transit  
<1% Industrial Buildings  
<1% Fugitive Emissions - Septic  
<1% Wastewater Treatment



**95,092 MTCO<sub>2</sub>e**

of greenhouse gasses emitted in 2024

### MUNICIPAL AND SCHOOL EMISSIONS

#### EMISSIONS BY SECTOR

53% School Buildings  
15% Municipal Fleet  
12% Municipal Buildings  
9% School Fleet  
8% Wastewater Treatment  
2% Streetlights



**3,063 MTCO<sub>2</sub>e**

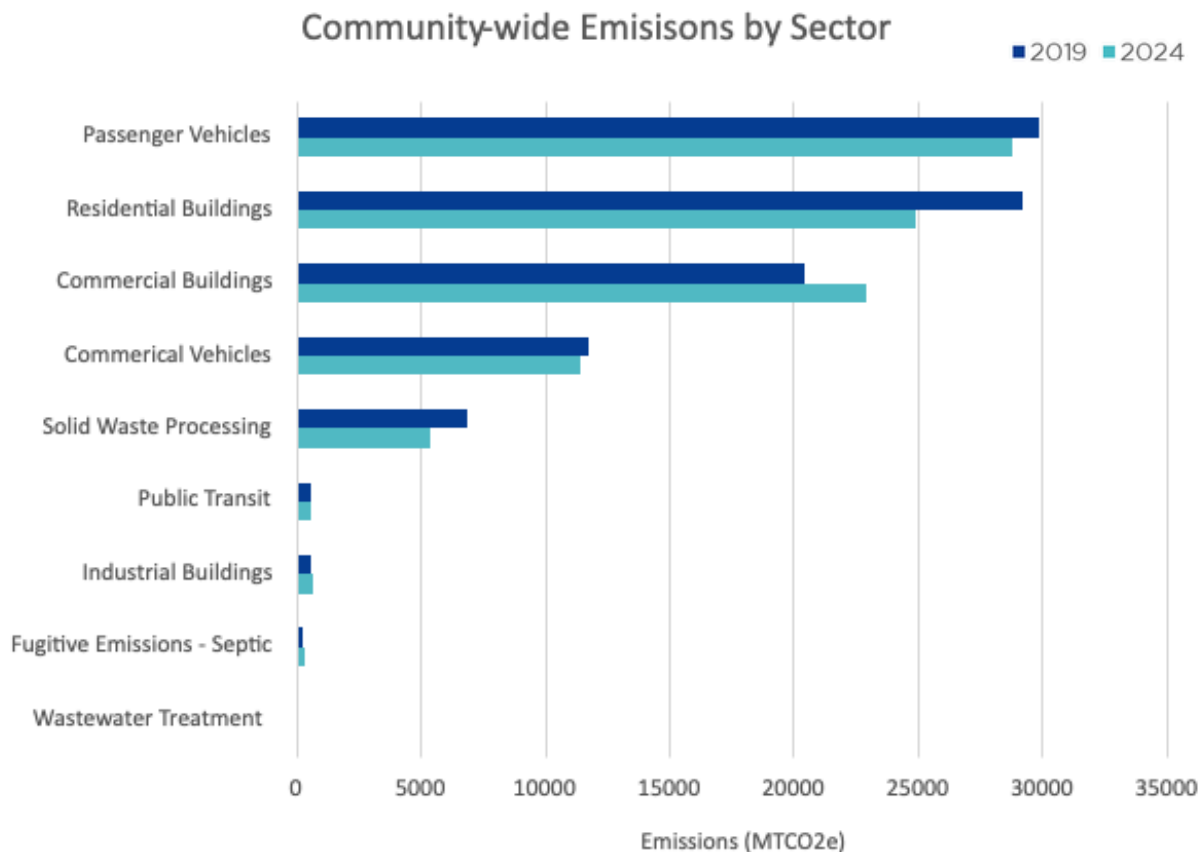
of greenhouse gasses emitted in 2024

**Town and School emissions make up of 3% of the community-wide total.**

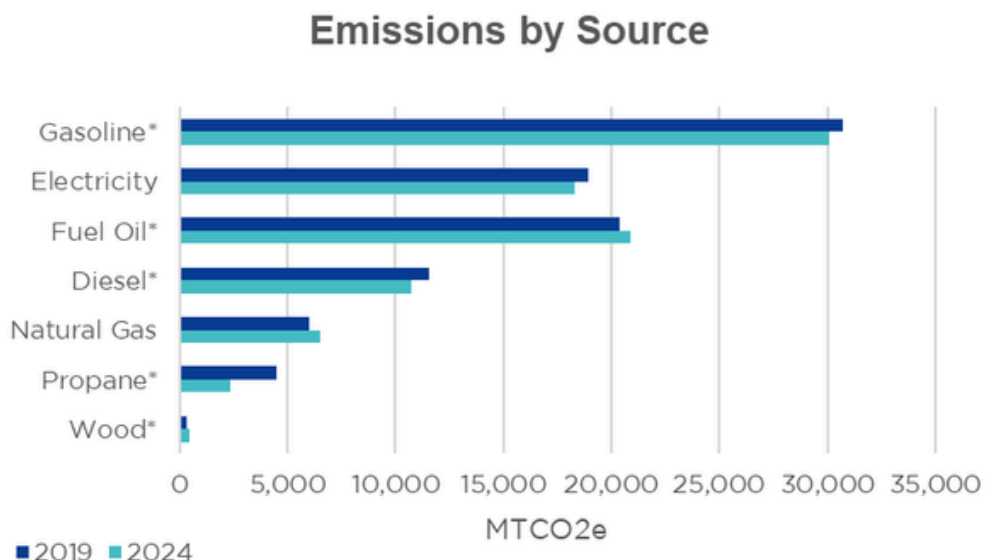
<sup>19</sup> All the following data reported for emissions is from the 2024 GHG inventory update. Data was gathered by the Sustainability Department and the Greater Portland Council of Governments utilized ICLEI's ClearPath modeling. Modeling follows the Inventory Protocol for Southern Maine Cities and Towns (SMPDC, 2021).

# How Emissions Have Changed

Compared to 2019, community-wide emissions are about 4% lower overall. Over the last several years, transportation emissions have been trending upward. Emissions from residential buildings decreased and commercial building emissions increased. Waste emissions are significantly lower.



In both 2019 and 2024, gasoline used for vehicles is the largest single source to emissions locally, followed by electricity use and the burning of heating fuel in homes and businesses. Relative to 2019, emissions from natural gas and fuel oil have increased slightly, while waste and propane emissions decreased the greatest extent. As the State's grid becomes greener, emissions from electricity will decrease.



\*Data sources are estimates. Changes in this data reflect updates to the estimates from representative data sets, including the American Community Survey.



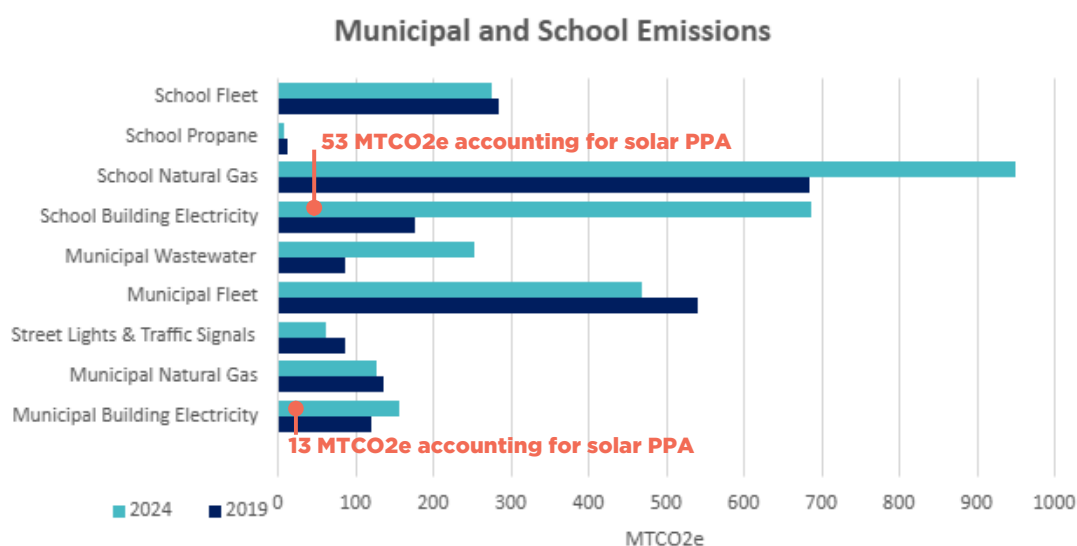
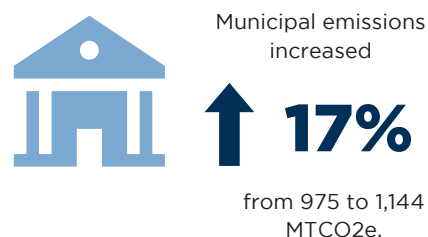
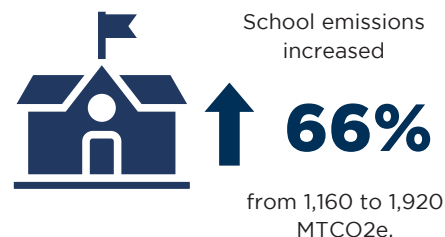
# Municipal and School Data and Emissions

Combined, Municipal and School emissions rose 44% from 2019 to 2024. Within the same time period there were changes in several key sectors, including an increase in emissions from Municipal buildings and wastewater treatment. School building emissions increased by the greatest extent, respective to other sub-sectors.

The data used to calculate these emissions comes directly from utility data, but it doesn't tell the whole story. Looking at trends over time, not just between two years, and actual energy use data may help illuminate why emissions are changing.

**Municipal and School emissions made up of 3% of the community-wide total in 2024. In 2019, these operational emissions made up 2% of the total.**

## Emissions Trends since 2019



In 2020, the Town and School entered into a Power Purchase Agreement (PPA) to cover a majority of electricity use with off-site solar credits. While PPAs have financial benefits, they are not a recommended GHG reduction strategy and national and regional protocols discourage relying on them in GHG reporting. Market-based credits, including PPAs, are complex to use in GHG inventories because they require dual accounting, clear evidence of additionality, strict usage rules, and careful communication to avoid misleading claims. These complexities make credits a less preferred emissions reduction strategy, especially compared to building or directly supporting new local renewable energy.<sup>20</sup>

## Yarmouth's Emission Reduction Targets

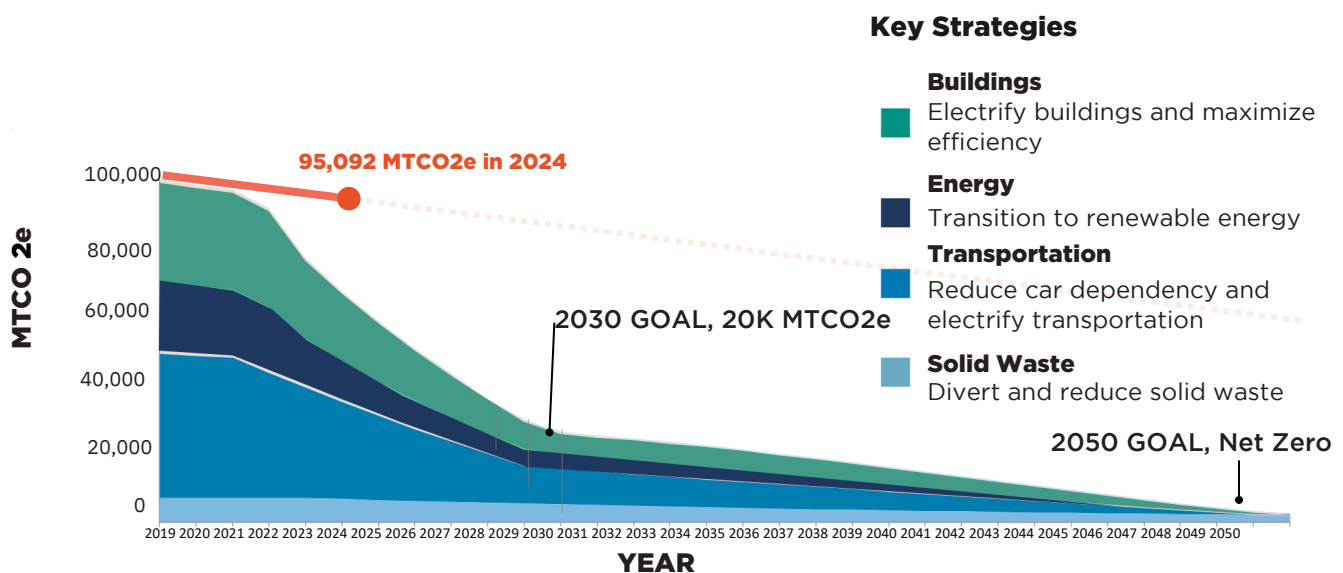
In 2022, Yarmouth Town Council endorsed a Climate Emergency Resolution. The Resolution set bold commitments for reducing emissions from Municipal and School operations and facilitating sustainable action by the broader community. While emissions and energy use from Municipal and School operations are a small percentage of our total community impact, the net zero by 2030 target for operations accelerates actions that are in the Town's direct control and are important to lead the community forward.



Communities around Maine have set net zero targets and the State committed to reducing GHG emissions by at least 80% by 2050 from 1990 base levels and reaching carbon neutrality by 2045.

## Pathway to Net Zero

Shown below is one modeled scenario for what meeting our targets looks like. Attaining this level of emissions reduction—nearly to zero by 2050—will require a range of ambitious and comprehensive actions including improving energy efficiency, transitioning transportation and heating to run on clean energy, and reducing single-occupancy vehicle travel. The red line visualizes where our emissions were in 2024 relative to this pathway.



# Conclusion

This report is intended to provide a high-level understanding of trends in Yarmouth's electricity consumption, fossil fuel use, and GHG emissions since the baseline year of 2019. It is designed to be a tool for Town leaders, staff, committees, and the School Department to guide decisions on fossil fuel reduction in pursuit of the town's net zero targets. Since the vast majority of fossil fuel use and emissions are from the private sector, the choices individuals, households, and businesses make have a ripple effect.

- **Tracking Data**

The Town's Sustainability Department will aim to track and report on data trends through the Action Progress report annually. Following best practices, emissions data will be calculated every few years.

- **The Path to Net Zero**

Like so many other communities, private businesses, and State and national governments, Yarmouth faces monumental challenges to reach net zero. It requires thoughtful, bold actions across our whole community that fundamentally change the way we go about 'business as usual'. While a 4% decrease in emissions over 5 years may seem small, there are indicators that Yarmouth is on the right track through efforts such as an increase in beneficial electrification, EV adoption, and Town decisions to lead by example. State and regional efforts are also key to our community reaching our goals - such as powering our electric grid with more renewables and facilitating public transit options so residents and visitors don't have to rely on cars to get where they need to go. As technology, best practices, funding, and community priorities evolve, the Town will continue to work towards a sustainable, low-carbon future that benefits our local economy, community connections, and quality of life.

- **Action Progress**

The data presented in this report is one tool to assess progress, but we can also look at how we collectively implement the Town's 2024 Climate Action Plan (CAP). In the first year since the CAP was adopted, the Town has made progress by initiating actions across different focus areas. From energy saving retrofits, policy development, and community engagement, Town departments, committees, and community members are taking important steps towards a sustainable future. Explore the 2024 Action Progress Report to learn more.

