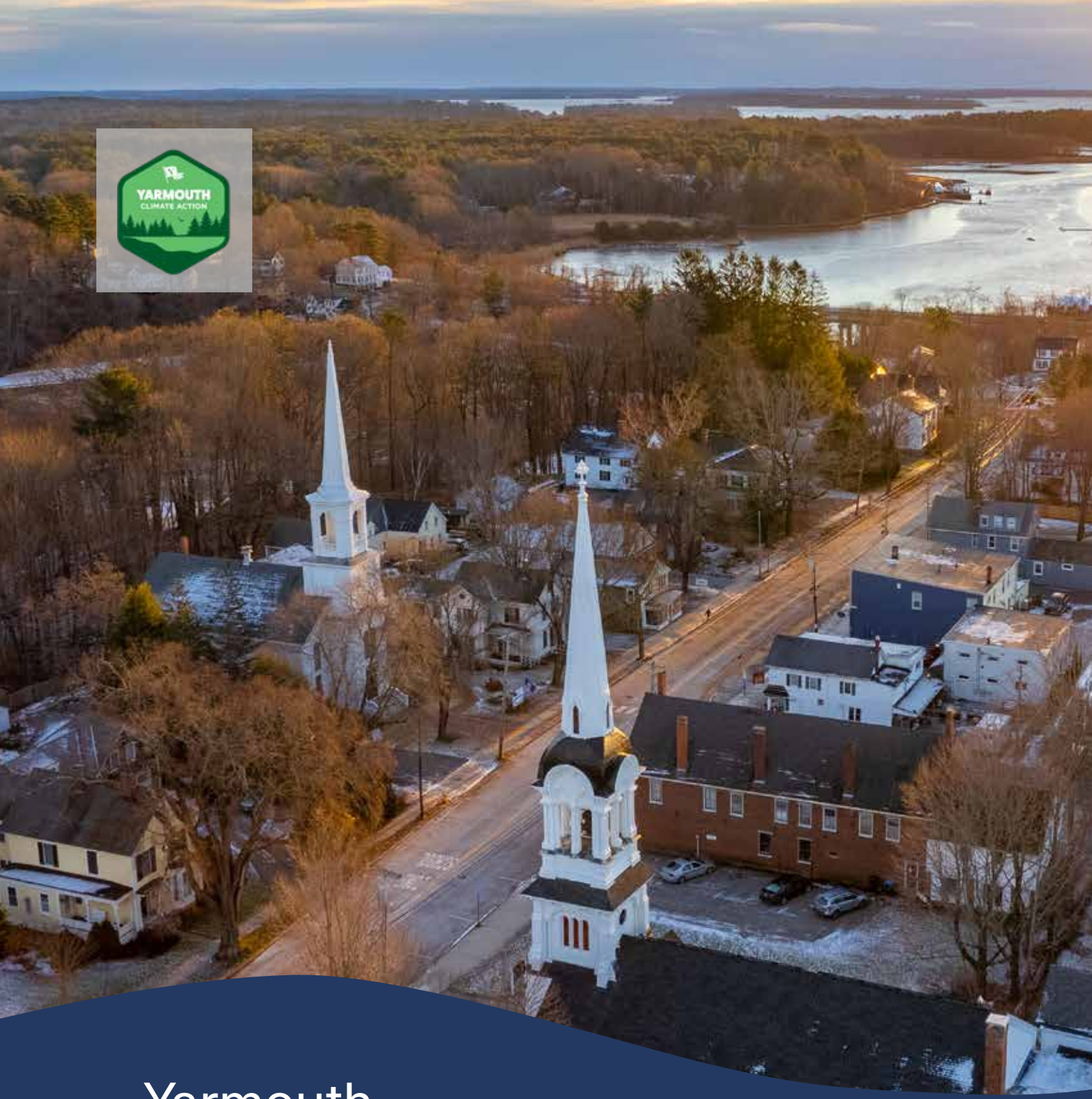


Yarmouth
Climate Action Plan

February 2024

YARMOUTH
MAINE

Table of Contents

Acknowledgments

Town leadership, staff, and the wider Yarmouth community have a longstanding shared commitment to addressing the climate crisis. Residents, businesses, and town staff have been taking thoughtful steps to steward the environment, reduce greenhouse gas emissions, and strengthen our community's capacity to adapt to climate hazards—all of which has led to a collective culture of climate action in our town.

We would like to thank Town leadership for supporting this Climate Action planning process, and Town staff and community volunteers for the dedication, collaboration, and knowledge they brought to this important effort. We also extend our gratitude to the community members and stakeholders that participated in the process along the way. Your valuable input helped ensure this plan reflects the priorities and values of our community.

Yarmouth Climate Action Task Force (YCAT)
Megan Hellstedt, Chair, CEES Liaison
Jeff Bates
Mary Gallaudet
Matthew Gamache
Abigail Grunewald, Student Representative
Caroline Norden
Anna Seigel, CEES Liaison, Student Representative
Sally Slovenski
Maya Faulstich, Student Representative
Jen Waterman
Nancy Martin
Stephanie Watson, CEES Liaison

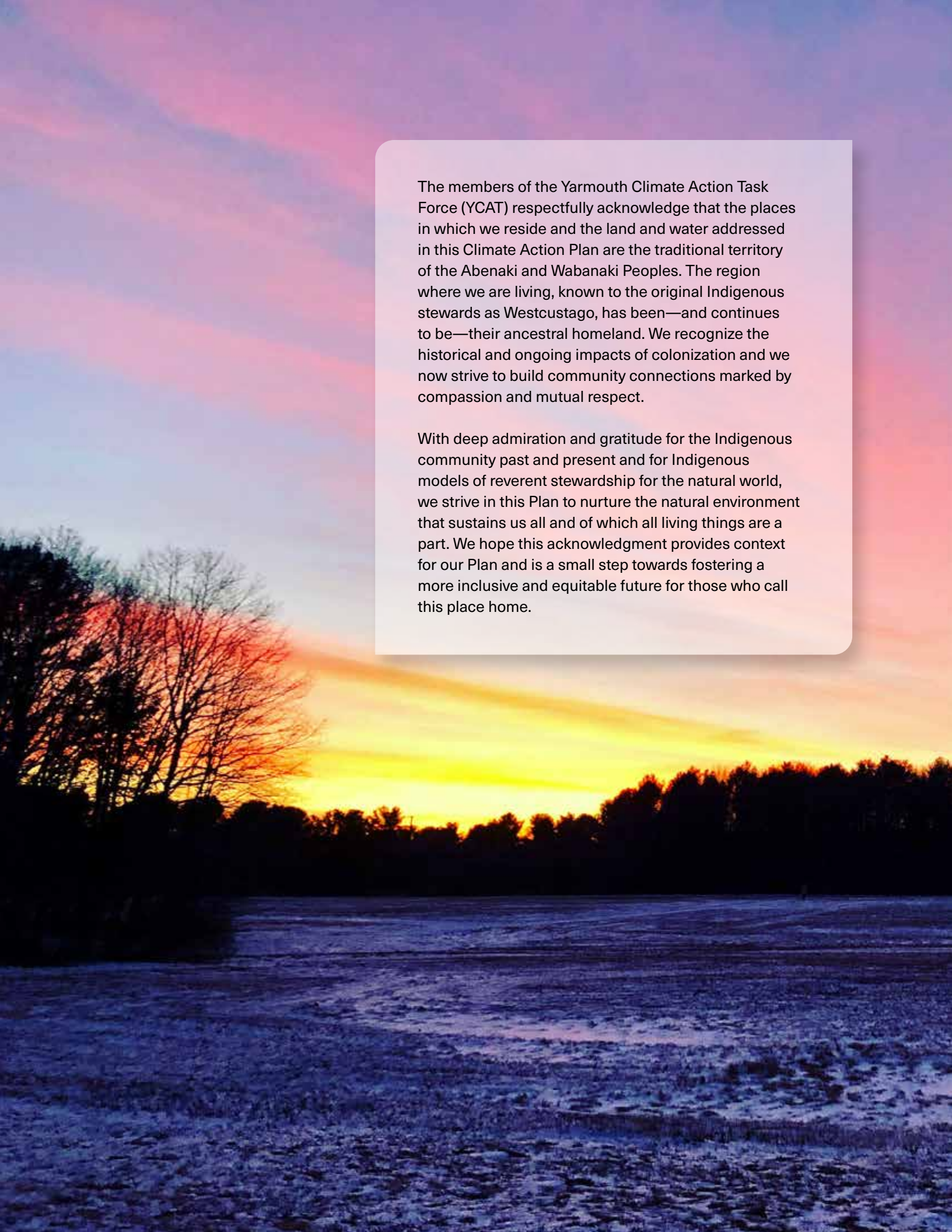
Town Staff
Meddy Smith, Sustainability Coordinator & Climate Action Plan lead
Julie Dubovsky, Assistant Planner
Erik Donohoe, Parks Specialist
Dan Gallant, Chief of Police
Steve Johnson, Town Engineer
Scott LaFlamme, Director of Economic Development and Interim Town Manager
Karyn MacNeill, Director of Parks, Recreation, and Community Services
Mike Robitaille, Chief of Fire Rescue
Erik Street, Director of Public Works
Nat Tupper, Town Manager
Erin Zwirko, Planning Director

Town Boards and Committees
Committee for Energy Efficiency and Sustainability
Bicycle and Pedestrian Committee
Recycling Committee
Economic Development Advisory Board
Planning Board
Parks and Lands Committee
Tree Advisory Committee

Yarmouth Town Council
David Craig, Chair
Michelle Cromarty, Vice Chair
Heather Abbott, 2024
Randall Bates
Zoe Wolf
Meghan Casey
Karin Orenstein, YCAT Liaison

Consultant Team
Sara Mills-Knapp, GPCOG Director of Sustainability
Kelly Rehberg, GPCOG Sustainability Program Manager

GPCOG
GREATER PORTLAND COUNCIL OF GOVERNMENTS



The members of the Yarmouth Climate Action Task Force (YCAT) respectfully acknowledge that the places in which we reside and the land and water addressed in this Climate Action Plan are the traditional territory of the Abenaki and Wabanaki Peoples. The region where we are living, known to the original Indigenous stewards as Westcustago, has been—and continues to be—their ancestral homeland. We recognize the historical and ongoing impacts of colonization and we now strive to build community connections marked by compassion and mutual respect.

With deep admiration and gratitude for the Indigenous community past and present and for Indigenous models of reverent stewardship for the natural world, we strive in this Plan to nurture the natural environment that sustains us all and of which all living things are a part. We hope this acknowledgment provides context for our Plan and is a small step towards fostering a more inclusive and equitable future for those who call this place home.

NAVIGATING THE PLAN

- **SEE THE HIGHLIGHTS**

  Read the executive summary to get an overall view of the plan. Alternatively, a summary of key facts and concepts can be found at the start of each focus area chapter.

- **LEARN HOW TO BECOME PART OF THE SOLUTION**

  Each chapter contains concrete suggestions and further resources for readers who wish to take action.

- **DIVE INTO ONE TOPIC**

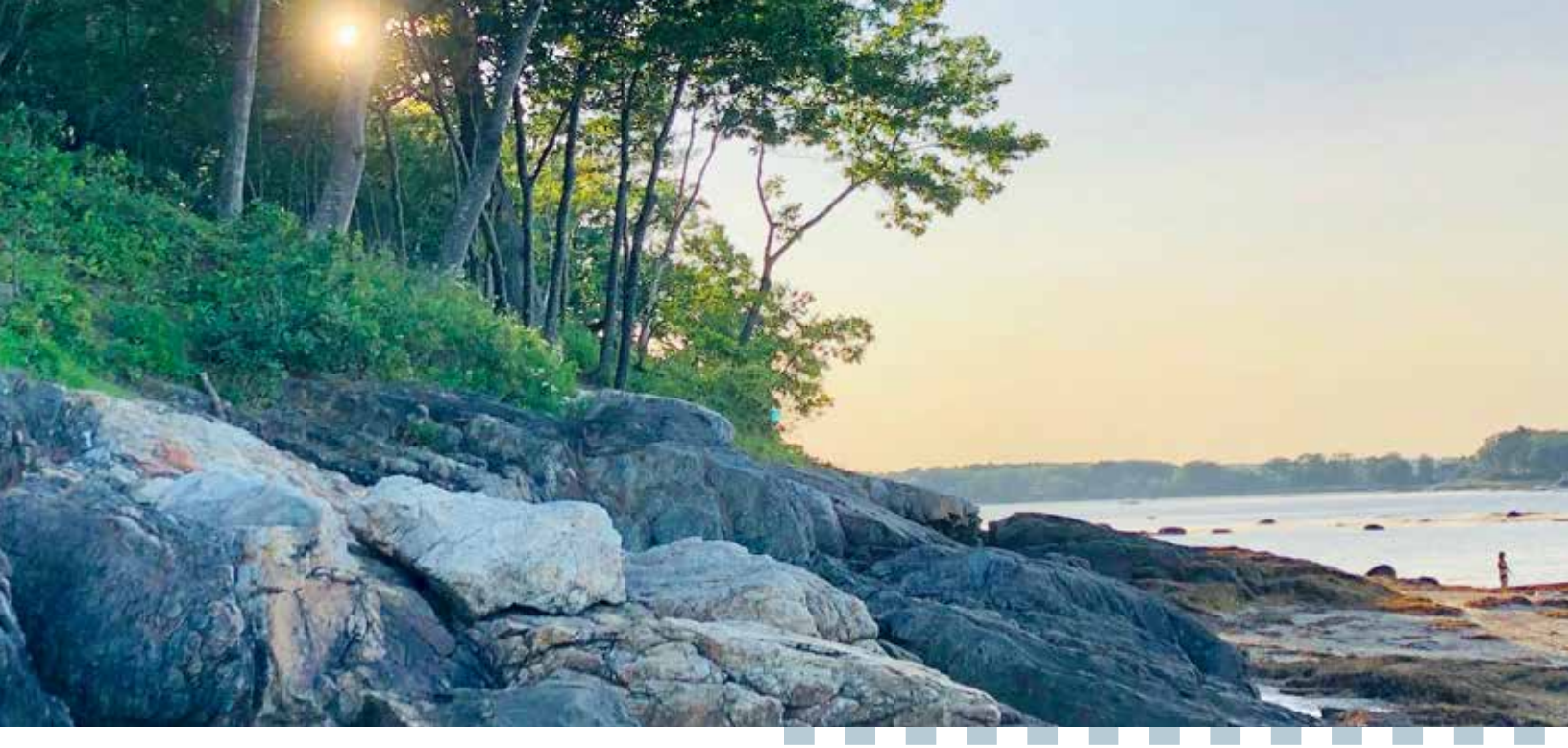
  Within this document, you can skip ahead to whichever topic is of most interest to you. Each chapter contains information about the relevant impacts of climate change and goals and suggested actions.

- **DISCOVER HOW THE PLAN WAS CREATED**

  Read the Developing the Plan section to learn about the people and processes involved in creating this document.

- **DIVE INTO THE DETAILS**

  This report is followed by an Implementation Table, which details the steps we will follow to reach our goals, as well as Implementation Blueprints to help guide initial steps. Data which helped shape our baseline knowledge can be found in the Greenhouse Gas Inventory and Vulnerability Assessment.



In order to ensure that the community's values and critical assets are sustained for future generations, Yarmouth must strengthen itself in the face of growing threats related to climate change. The climate crisis presents an opportunity for individuals, businesses, and community leadership to shape our collective future. Local governments can lead the way in addressing the impacts of climate change such as rising seas, severe storms, and intensifying public health hazards. Municipalities are uniquely positioned to empower residents and businesses to reduce emissions while adapting policies and services to prepare the community for a healthy future.

If we choose not to make critical investments in climate solutions, the social, capital, and environmental costs will be extensive. Both the federal government and the state of Maine are guiding and incentivizing municipalities to play a role in achieving state-wide and national climate goals. We created this plan through a collaborative public process based on data and climate solutions available today, in order to meet bold targets set for 2030 and 2050. The Plan is intended to evolve as a framework for our community to take strategic actions while pursuing a resilient tomorrow.

Now is the time to act, and Yarmouth is charting a course.

CONNECTED EFFORTS

Over the course of 2023, the Town was developing two related, but distinct plans: the Comprehensive Plan Update and the Climate Action Plan. Working in harmony, these two plans will guide the actions we take in many different parts of our community, from ensuring the strength of our economy to protecting our natural resources for future generations.

"While mitigating the causes of climate change and better preparing Maine for its impacts will require significant public and private investment, inaction will cost Maine substantially more, and those costs will accelerate over time."

Maine Won't Wait,
State Climate Action Plan (2020)

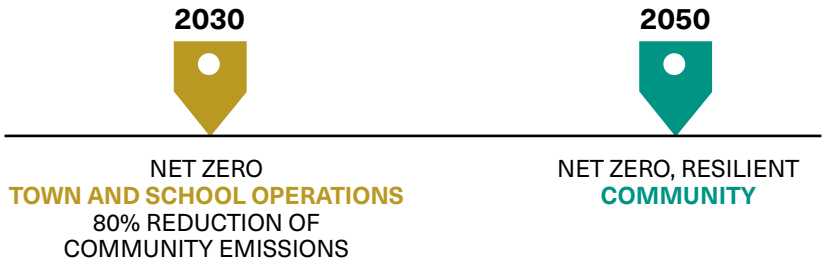
Bold Targets

In 2022, following a groundswell of rigorous and inspiring advocacy by local youth activists, Yarmouth Town Council endorsed a Climate Emergency Resolution. The Resolution established bold targets to reduce emissions and prepare for climate impacts while requiring a plan to guide progress. The Yarmouth Climate Action Task Force presents this Plan, based on community engagement and technical analysis, as an actionable roadmap to reduce our contribution to climate change and lay the foundation for a healthy and sustainable future.

The Climate Resolution set bold commitments for reducing emissions from municipal and school operations and from the broader community. While emissions from municipal operations are a small percentage of our total community impact, the net zero by 2030 target for town and school operations accelerates actions that are in the Town's direct control and are important to lead the community forward. This Climate Action Plan lays out the first steps toward reaching these targets.

"Be it further resolved, that the Town of Yarmouth, commits to take prompt actions, while recognizing that significant commitment, including regulatory, fiscal and time, is needed to slow and eventually halt the local contribution to global climate change and the associated negative ecological, economic, social, and public health crises."

Climate Emergency Resolution, February (2022)



The Climate Resolution also highlights the need for sustained and meaningful community engagement and accelerating local adaptation and resilience strategies in preparation for intensifying climate impacts. As this Plan is implemented, the Town will strive to bring in many voices to develop solutions that keep us safe, protect our environment, advance affordability and accessibility, and reduce emissions.

KEY TERMS

Net Zero refers to cutting our total greenhouse gas emissions to as close to zero as possible, with any remaining emissions re-absorbed from the atmosphere through natural processes[1]. In Yarmouth's Climate Resolution, the intention is to prioritize the elimination of greenhouse gas emissions through a variety of direct interventions rather than relying on market-based carbon offsets.

Resilience refers to the capacity of communities, systems, or individuals to adapt and recover swiftly from stressful circumstances or disasters. Being 'resilient' requires **adaptation** which is the process of adjusting to, or preparing for, the changing climate and its impacts.

1. United Nations Net Zero Coalition

CLIMATE CHANGE IN YARMOUTH

Greenhouse gasses (GHGs) create the conditions for life on earth by trapping heat in the atmosphere and regulating Earth's temperature. However, since the 1800s, human activities (such as cutting down forests and burning coal, oil, and gas) have increased the amount of GHGs in the atmosphere, trapping excess energy and disrupting the Earth's climate[2]. This changing climate brings a range of hazards throughout the world such as extreme heat, intense storms, and rising sea levels.

TOP FOUR CLIMATE HAZARDS FOR YARMOUTH

- Heat Waves
- Intensifying Storms
- Sea Level Rise
- Changing Ocean Conditions

Water levels in Casco Bay have risen by 7.5 inches since 1912.[7] Maine will likely experience at least a **1-foot rise in sea levels by 2050** and three feet of sea level rise by 2100.[8]

We are experiencing more precipitation—but it's coming in **shorter, more extreme events**.[3]

The Gulf of Maine warmed **faster than 99% of the global oceans**, and Casco Bay water temperature has increased 2.5°F (1.4°C) in the last decade.[9]

Continued warming will **impact the ranges of plant and animal species** in our region; with health and economic impacts expected due to tick and mosquito borne disease and changes in fisheries.[10]

Yarmouth can expect **20 to 30 more high heat days each year** by 2050.[6]

By 2050 we could see a **50% decrease** in snowpack[4] and the winter season will shrink by one to two weeks.[5]

In 2100, Maine's climate could feel like present-day Rhode Island.[11]

THE FUTURE DEPENDS ON OUR ACTIONS TODAY

Today's efforts to avoid the worst impacts of climate disruption will result in a brighter future for all members of the Yarmouth community. By taking immediate action to lower emissions that contribute to climate change and preparing our community for changes to come, we can help protect our future.

2. United Nations, What is Climate Change
3. Maine's Climate Future 2020 Update
4. Maine's Climate Future 2020 Update
5. Plos One Journal; Maine Public
6. Plos One Journal; Maine Public
7. Maine's Climate Future 2020 Update
8. Maine's Climate Future 2020 Update
9. https://www.gmri.org/stories/gulf-maine-explained-warming-gulf-maine/
10. Maine Won't Wait, Maine Climate Council, 2020
11. Maine Wont Wait, Maine Climate Council, 2020

Climate Change Impacts Us Now

Yarmouth is already experiencing the negative impacts of climate change, and they will intensify in the coming years. Across New England, summers are hotter, winters are warmer, and rain events are less frequent but more intense. Our community is facing more severe weather conditions than before, marked by increased flooding and more intense storms which often damage our infrastructure, including roads and bridges. Hotter temperatures pose human health risks. A warming and acidifying ocean is disrupting the health of our ocean species and impacting our marine economy.

The burden of climate change will not be felt equally across our community. People with existing social vulnerabilities, such as senior citizens, families managing disabilities, or cost-burdened households, will be disproportionately impacted by climate hazards and climate-related health risks.

As part of this effort, Yarmouth conducted a Vulnerability Assessment to identify the people, places, and systems in our community that will be most impacted by climate hazards.

The following conditions related to social vulnerability stood out from this assessment:

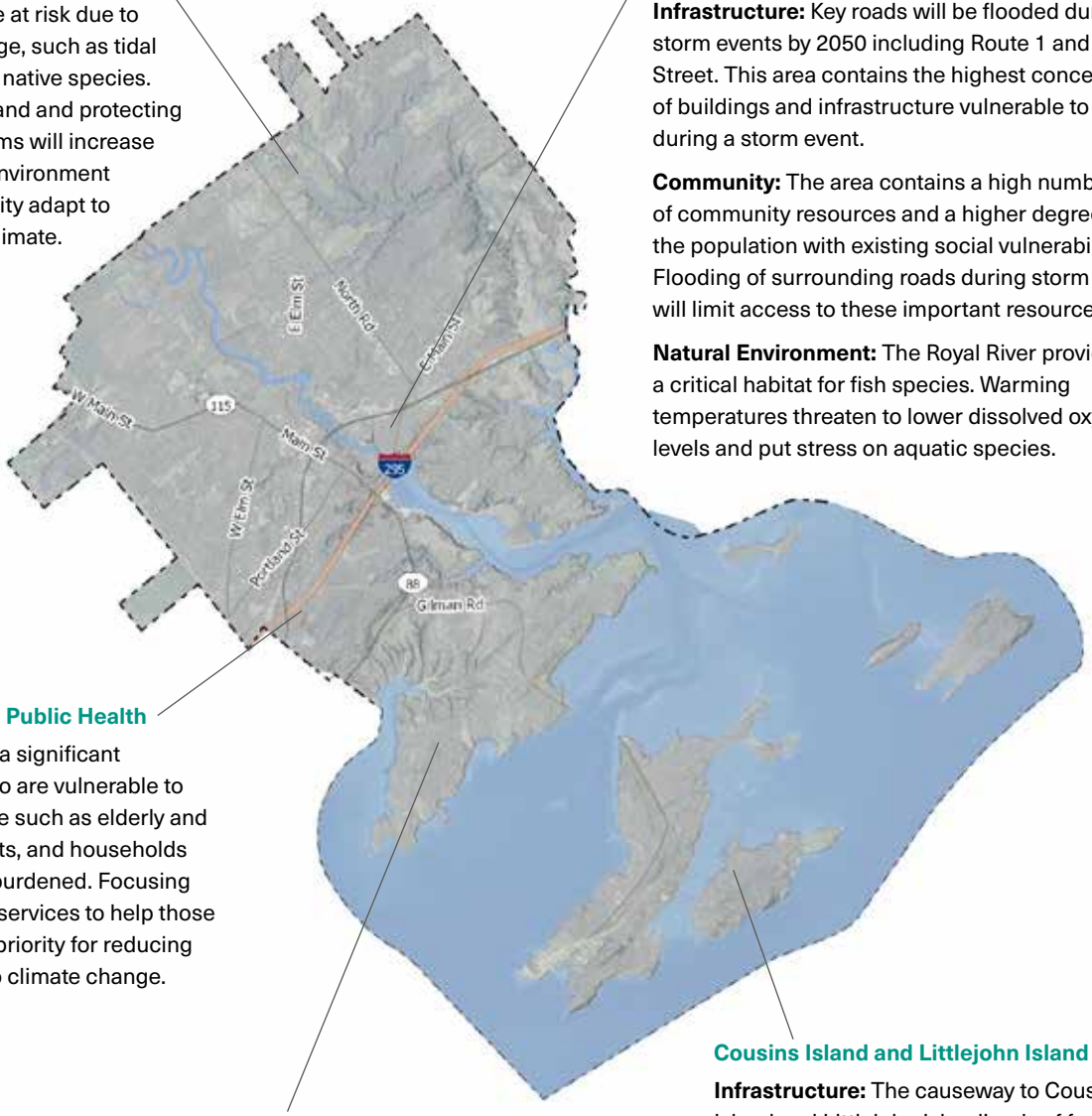
- 38% of residents are cost burdened
- High percent of older building stock
- 25% of residents over 65 are living alone

KEY TERMS

Social vulnerability refers to factors that may weaken a community or individual's ability to adapt to or recover from a disaster. Factors like age, financial stability, social networks, and access to resources could make it more difficult to be resilient.

Ecosystem Conservation

Many of the town's natural resources are at risk due to climate change, such as tidal marshes and native species. Conserving land and protecting natural systems will increase Yarmouth's environment and community adapt to a changing climate.



Downtown

Infrastructure: Key roads will be flooded during storm events by 2050 including Route 1 and Main Street. This area contains the highest concentration of buildings and infrastructure vulnerable to flooding during a storm event.

Community: The area contains a high number of community resources and a higher degree of the population with existing social vulnerabilities. Flooding of surrounding roads during storm events will limit access to these important resources.

Natural Environment: The Royal River provides a critical habitat for fish species. Warming temperatures threaten to lower dissolved oxygen levels and put stress on aquatic species.

Challenges to Public Health

Yarmouth has a significant population who are vulnerable to climate change such as elderly and young residents, and households who are cost burdened. Focusing on increasing services to help those impacted is a priority for reducing vulnerability to climate change.

Maintaining access to critical infrastructure and community services during storms.

Flooding of key roadways, such as Route 1 and Littlejohn Causeway, will limit access to vital resources. The Town should ensure that key travel roads are designed to withstand increased precipitation and that culverts and drainage are maintained and upgraded if necessary.

Cousins Island and Littlejohn Island

Infrastructure: The causeway to Cousins Island and Littlejohn Island's wharf for the ferry to Chebeague Island are vulnerable to flooding.

Natural Environment These islands contain several parks that are at risk. The surrounding waters contain habitat for several key marine species that provide economic and recreational value.

There are several priority actions Yarmouth can take to prepare for climate hazards:

- Maintaining access to critical infrastructure and community services during storms
- Expanding health services for vulnerable populations, especially for extreme heat
- Conserving land and protecting natural systems
- Preparing our coastal infrastructure, open spaces, businesses, and neighborhoods for the impacts of sea level rise

HOW WE ARE CONTRIBUTING TO CLIMATE CHANGE?

When residents, visitors, and workers engage in daily activities such as driving to work or school and heating our homes and business, we typically burn fossil fuels that add to the already high levels of GHGs in the atmosphere. The faster we reduce our emissions, the better chance we have at slowing the pace of climate change.

For this Plan, the Town conducted an inventory of greenhouse gas emissions for 2019. This inventory data estimates emissions in Yarmouth—and helps identify our biggest opportunities to reduce emissions.

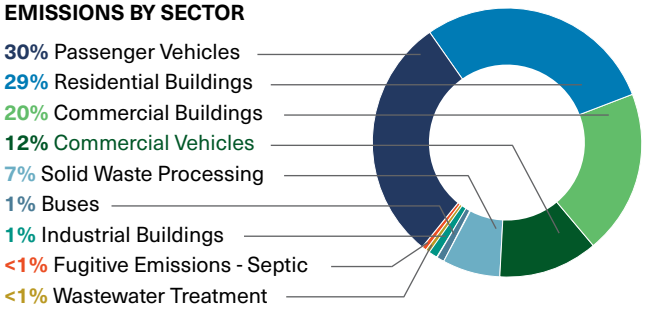
EMISSIONS BY SECTOR

In Yarmouth, the majority of emissions (50%) come from the use of electricity and heating fuels for residential and commercial buildings. Transportation is the second-largest source of emissions (43%).

Our window for action is closing according to the top 2,000 climate scientists in the world[12]. The most recent UN Climate Summit agreement signed by nearly 200 countries calls on parties to transition "away from fossil fuels in energy systems, in a just, orderly and equitable manner, accelerating action in this critical decade, so as to achieve net zero in keeping with the science" by 2050. It includes a new specific target to triple renewable energy generation and double energy efficiency by 2030.[13]

COMMUNITY-WIDE EMISSIONS

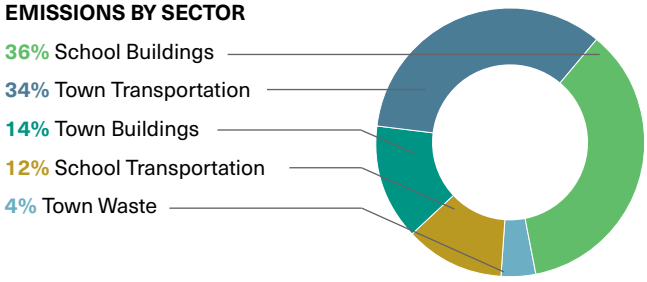
EMISSIONS BY SECTOR



99,828 $MTCO_2e$
of greenhouse gasses emitted in 2019

MUNICIPAL AND SCHOOL EMISSIONS

EMISSIONS BY SECTOR



2,414 $MTCO_2e$
of greenhouse gasses emitted in 2019

KEY TERMS

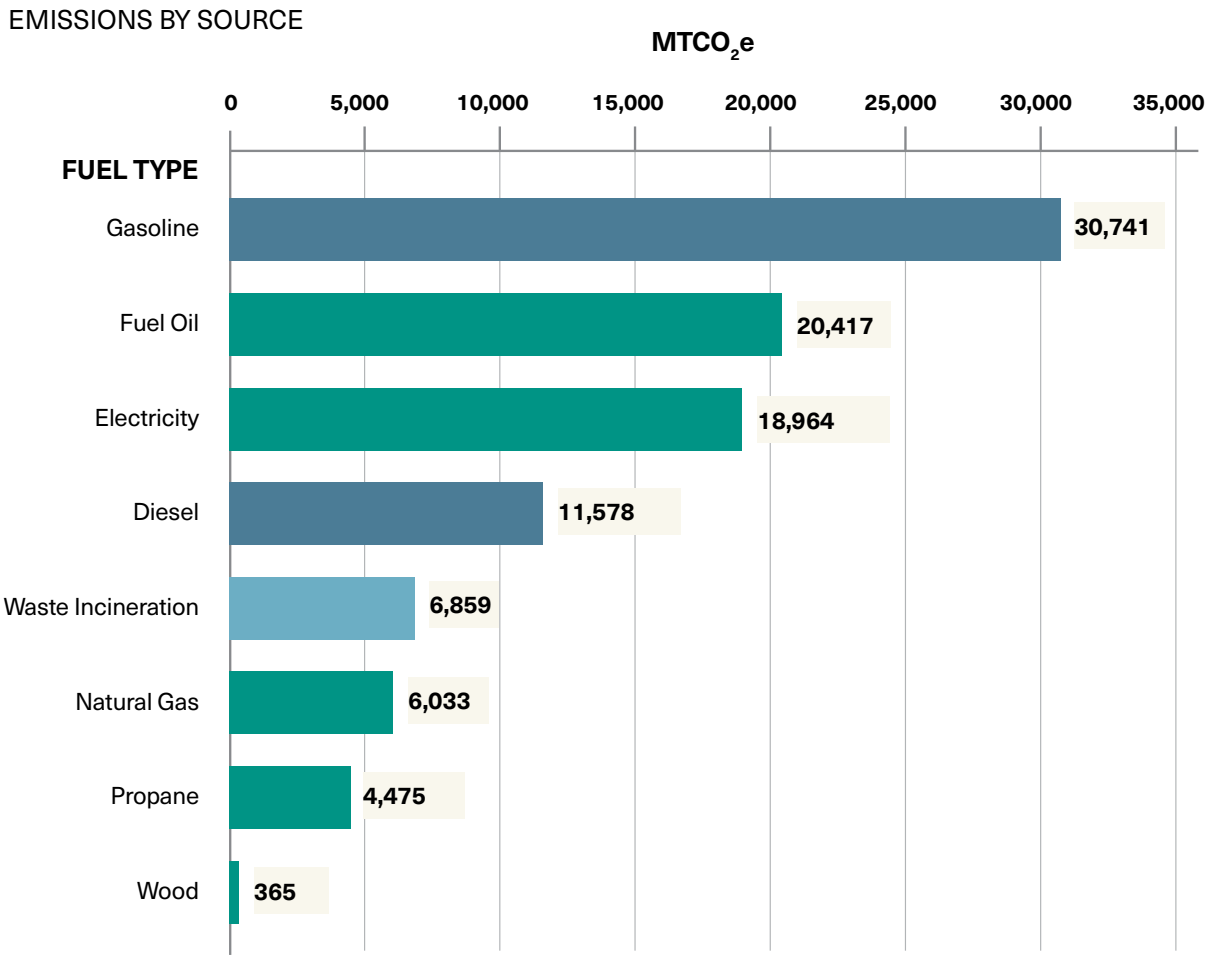
GHG emissions are measured in **metric tons of carbon dioxide equivalent ($MTCO_2e$)**. The tonnage of other greenhouse gasses (e.g. methane, nitrous oxide) is adjusted to the equivalent tonnage of carbon dioxide necessary to produce the same warming effect so everything is reported in the same units.

Emissions from Town and School operations contribute 2% of the community total.

12. IPCC, Sixth Assessment Report, Climate Change 2022: Mitigation of Climate Change, 2022.
13. ABC News, Landmark fossil fuel agreement and other key takeaways from the COP28 climate conference, 2023.

EMISSIONS BY SOURCE

In addition to looking across sectors, analyzing the sources of emissions identifies what activities are driving emissions, and what opportunities exist to decrease emissions. Looking at emissions by source, gasoline in vehicles is the largest source, while building emissions are a result of electricity use and the burning of heating fuel.

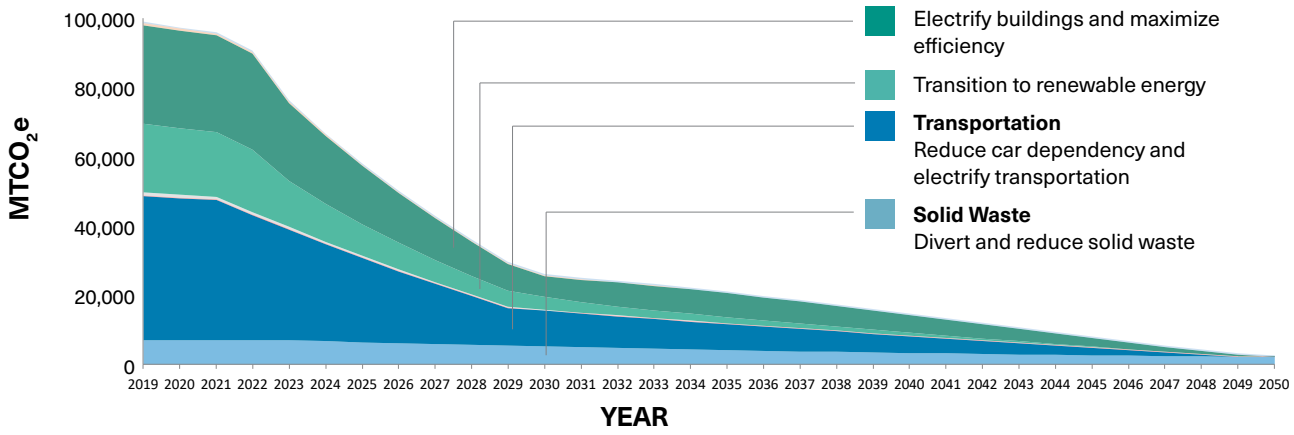


"Burning gasoline to power our vehicles is the biggest single source of emissions in Yarmouth."

PATHWAY TO REDUCING EMISSIONS

Yarmouth is joining neighboring communities and the State to set emissions reductions goals, take strategic action, and track progress. Maine has recently surpassed medium-term goals for reducing emissions 10% from 1990 levels by 2020 (they achieved 25% reduction by the target year of 2020)[14]. While Yarmouth has not consistently measured community greenhouse gas emissions before 2019, the town has taken significant steps to reduce emissions. These include sourcing nearly all town and school electricity from solar through a Power Purchase Agreement, piloting electric vehicles in the municipal fleet, replacing streetlights with energy efficient LEDs, and pursuing a community solar farm with the intention of making affordable renewable energy available to town residents.

Continuing to reduce reliance on fossil fuels across all sectors will be vital to reaching our net zero emission targets. The graph below models how we could reduce community-wide emissions by implementing key strategies between now and 2050.



Attaining this level of emissions reduction—nearly to zero by 2050—will require a range of actions including improving energy efficiency, transitioning transportation and heating to run on clean energy, and reducing single-occupancy vehicle travel. An overarching strategy that will be required is to transition our sources of electricity to 100% renewable energy—which will be supported by State efforts to green the grid[15].

This plan aims to move our community as close as possible to zero emissions by 2050, without accounting for carbon sequestration and storage. Although our natural ecosystems are vital for absorbing carbon from the atmosphere, this modeling and the actions in the Plan do not depend on carbon absorption through natural areas to offset the emissions we generate. This approach underscores our focus on transitioning to zero emissions from fossil fuels. However, the Plan does recommend future actions to measure the carbon absorbed and stored by our lands and waters, primarily for the purpose of prioritizing land conservation and restoring the health of natural systems.

KEY TERMS

Carbon sequestration is a natural or artificial process by which carbon dioxide is removed from the atmosphere and held in solid or liquid form, which serves to help slow the pace of global warming. In Yarmouth, this function is performed naturally by both living and felled trees, as well as marshes and eelgrass beds.

If Yarmouth successfully implements all objectives and actions in the Climate Action Plan, we are on a good course to reach our net zero emission reduction target by 2050.

14. Maine DEP, Ninth Biennial Report on Progress Toward Greenhouse Gas Reduction Goals, 2022.
15. The State has a goal to source 80% of grid-supplied electricity from renewable sources by 2030 and 100% by 2050.

YARMOUTH'S COMMITMENT TO CLIMATE ACTION

Addressing climate change is a longstanding priority in Yarmouth. In addition to the many ways Town staff and leadership incorporate climate resilience and mitigation into decision making, there have been significant strides in recent years. Many of these municipal actions have been championed by the Committee for Energy Efficiency and Sustainability (CEES).

2020

Municipal and School Power Purchase Agreement (PPA)

3 Electric vehicle (EV) charging ports installed at town hall for free public use

2 Electric vehicles obtained for Municipal fleet

2021

School Department invests in two electric buses

2022

Town Council adopts Climate Emergency Resolution

Town enrolls in Community Resilience Partnership (CRP)

YCAT forms and begins development of Climate Action Plan

CRP grant award with Freeport to hire a shared Sustainability Coordinator

2023

Launch Efficiency Yarmouth pilot rebate program to empower low- and moderate-income residents to invest in heat pumps

Efficiency Maine grant award for 4 additional EV charging ports on municipal property

COMMUNITY RESILIENCE PARTNERSHIP

Supporting State and Federal Commitments

Yarmouth is not alone in addressing climate change. Tackling climate change requires decisive action across federal, state, regional, and local governments. In 2020, Maine's Climate Council released the State's first Climate Action Plan—Maine Won't Wait. The State committed to reducing GHG emissions by at least 80% by 2050 from 1990 base levels and reaching carbon neutrality by 2045. In 2021, the federal government pledged to reduce GHG emissions 50% by 2030 from 2005 levels and to reach net-zero emissions by 2050 at the latest.

By successfully implementing this Plan, we can contribute to meeting state and national-level climate commitments. At the same time, state and federal government action can enable Yarmouth to make progress by creating funding opportunities, fostering regional partnerships, and developing emerging technologies. Yarmouth is well positioned to take advantage of opportunities as they become available by leveraging associated grants and technical support.

By achieving the goals set in Yarmouth's Climate Action Plan we will support state and federal climate commitments.

FEDERAL FUNDING

Bipartisan Infrastructure Law (BIL)

Provides grants to help municipalities establish programs to reduce emissions from transportation and buildings and technical assistance to help communities become more resilient to climate hazards. The BIL also requires other funded entities (states, non-profits, and companies) to consult with relevant communities and develop Community Benefit Plans (CBP). This Climate Action Plan positions Yarmouth to leverage additional resources through CBPs.

Inflation Reduction Act (IRA)

Provides tax credits and direct payments to tax exempt entities to reduce the costs of investing in EVs and clean energy. Like the BIL, the IRA also requires CBPs.

FEMA BRIC and Hazard Mitigation Grants

Grants to support communities to undertake hazard mitigation projects to reduce the risks from disasters and natural hazards.

STATE FUNDING

Maine Community Resilience Partnership

Provides grants for municipalities to upgrade facilities, invest in resilient public infrastructure, encourage community climate action, and more.

Maine Infrastructure Adaptation Fund

Funding for municipalities to adapt critical infrastructure to reduce vulnerability to climate change resulting from extreme weather, sea level rise, inland and coastal flooding and severe heat.

Coastal Community Grants

Provides grants for municipalities to improve water quality, increase adaptation to erosion and flooding, restore coastal habitat, promote sustainable development, and enhance the coastal-dependent economy.

Shore and Harbor Planning Grants

Provide grants for shoreline access planning, waterfront and harbor planning, and efforts for resilient waterfront infrastructure.

Developing the Plan

This plan was developed with collaboration across Town departments, committees, community stakeholders, and input from members of the public. People with different experiences, backgrounds, and priorities were engaged to create a plan that addresses current needs while pushing for innovation and leadership that the climate crisis demands. This plan builds off past and ongoing efforts from the Town, community organizations, and individuals striving for a sustainable, just, and healthy future for Yarmouth.

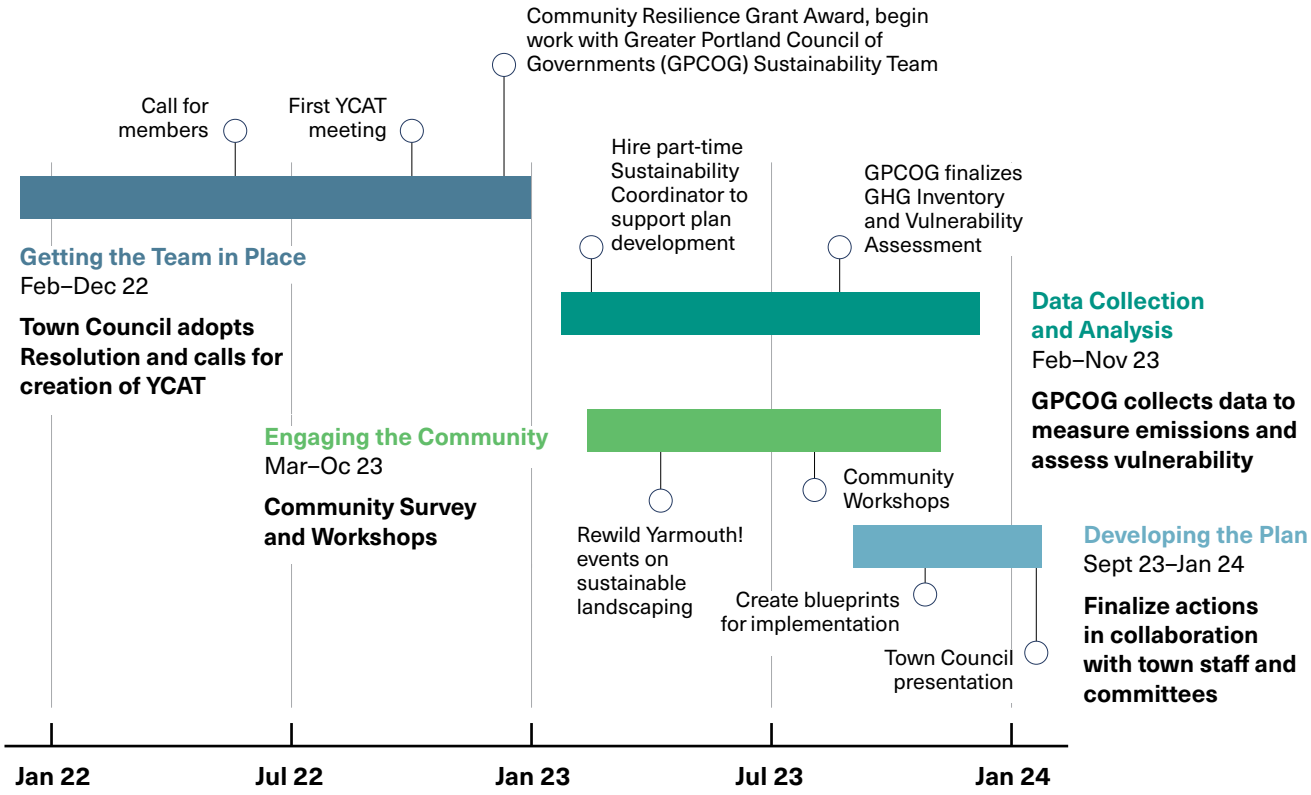
YCAT Leading the Way

To develop the plan, the Town Council created a temporary volunteer resident task force, the Yarmouth Climate Action Task Force (YCAT). The Task Force included student representatives, liaisons from the Committee for Energy Efficiency and Sustainability (CEES), and town residents.

Over the course of 16 months, the Task Force:

- Engaged our community through conversations, surveys, presentations, and events
- Researched best practices and existing conditions to inform the Plan
- Brought expertise and diverse perspectives to refine goals, strategies, and actions and guide plan development

OUR TIMELINE



COMMUNITY ENGAGEMENT

Residents, businesses, community organizations, and town committees and staff all had important roles in developing this plan. Through workshops, surveys, and feedback conversations our community shared their priorities and ideas to help refine the actions recommended in this plan and shape our efforts to address climate change as a town.

11 different town boards and committees engaged

5 Rewild Yarmouth events in Spring 2023 that focused on engaging a range of residents, from landowners and gardeners to parents of young children on sustainable landscaping practices

Student-led presentation to the High School

1000+ Volunteer Hours

138 survey respondents

70+ participants at 2 community workshops

ONLINE PRESENCE

A project website was developed by GPCOG to be a hub for information created throughout the process, share opportunities for feedback, and display project updates. Information about the project was also shared on the Town's social media and through the Town newsletters.

STAFF AND COMMITTEE INPUT

Throughout the process, town staff shared their feedback to help co-create the plan. Staff have intimate knowledge of the resources required to accomplish actions and the landscape of other projects, priorities, and policies of the town. Staff and resident committees will ultimately be responsible for implementing actions in this plan and success depends on our ability to collaborate, share information, and align on projects to meet our shared goals.

SURVEY AND WORKSHOPS: WHAT WE HEARD

Concerns

- Polluted waterways
- Worsening air quality
- Extreme weather events
- Reduction in biodiversity
- Tax rates and affordability
- Energy security and rising energy costs

Priorities

- Conserving land
- Protecting habitat
- Making walking and biking safe and convenient
- Enhancing community connections and balancing development
- Making information and incentives available to support resident action

Residents are Already Taking Action

Most survey respondents say they:

- Regularly recycle
- Shop for local food
- Take steps to save energy and water

"Help residents overcome barriers to implementing eco-friendly changes, whether that be financial incentives or educating people on what they can do and HOW to do it."

GUIDING PRINCIPLES

The Yarmouth Climate Action Task Force (YCAT) selected **five guiding principles** in shaping the process, content, and implementation of the Plan. These principles reflect the draft vision statement developed during the Comprehensive Planning process[2].

COMMUNITY-WIDE INPUT: Seek input from a diverse network from across the community, explore interconnections, engage partners and experts, facilitate opportunities for public input and feedback, and harness creativity to proactively address the wide-ranging needs of community members.

BOLD ACTIONS: Bold, clear, and concrete actions are needed to address the urgency of climate change. The Town will employ innovative and sustainable approaches that are based on their potential to reduce greenhouse gas emissions, cost effectiveness, feasibility, equity, and overlapping benefits for environmental and community health.

EQUITY: Strive to involve all community members, especially vulnerable or marginalized groups. Prioritize climate action that addresses injustice, expands access for traditionally marginalized communities, and builds community capacity and ownership.

VARIETY OF TOOLS: A blend of incentives, regulation and information sharing are necessary to address greenhouse gas emissions and prepare our community to adapt to the changing climate. The Town should lead by example in actions, policies, and investments.

LIVING DOCUMENT: Measuring our progress over time and being flexible to evolving conditions is critical to achieving our goals. The Town will review and revise this Plan to ensure it is a living document.

VISION STATEMENT

The Town of Yarmouth is a small coastal community with a vibrant and picturesque village center. Yarmouth's identity is deeply rooted in the Town's history, beauty, and commitment to community. The walkability of the Town's historic Main Street, abundant open space areas, and active community groups all contribute to community members' sense of connectedness to the Town. The Town is dedicated to protecting and preserving what makes Yarmouth a great place to live. At the same time, residents recognize the significant local, regional, and global challenges that the Town faces, and are committed to addressing these issues with careful consideration for the Town's history and culture and with creativity to leverage opportunities to enhance the Town's defining characteristics— beauty, history, inclusivity, abundant open spaces and recreation opportunities, and commitment to volunteerism— to build an even stronger community. To meet the needs of residents and community members, the Town will plan and make decisions through a lens of equity, sustainability, and fiscal responsibility to ensure that the community's values and critical assets are sustained for future generations.

2. The Vision Statement was identified during the Imagine Yarmouth process and will be refined for the final Comprehensive Plan.

WHAT THIS PLAN CAN BE

- **AN ACTIONABLE ROADMAP**

  This Plan is an actionable roadmap that will guide Yarmouth towards reaching our emission reduction targets for 2030 and 2050 and prepare our community for the intensifying impacts of a changing climate.

- **A FRAMEWORK**

  Town leadership will use this plan as a framework for making decisions for policy, investment, and projects. Like any public decision-making process, there will continue to be community dialogue and stakeholder engagement. The Plan is intended to be flexible and will need to be revised at regular intervals as progress is assessed and communicated to the public. As better data or tools become available or as new technologies and opportunities emerge, the Town will update the Plan to follow best practices.

- **A TOOL FOR CIVIC ENGAGEMENT**

  The climate crisis requires bold and urgent action across our whole community. As the Town implements the Plan, there is an opportunity to bring in more voices, support residents and businesses to take action, and continue to foster a culture of collaboration, justice, and inclusivity in town.

YOUTH VOICES

This Plan was initiated through a process started by local youth activists who recognized the need for the Town to take action on climate change. The younger generation will bear the biggest burden of climate impacts—and our efforts now affect their access to a clean, safe, and healthy future. Moving forward, Yarmouth should hold space for youth voices in projects and planning and offer opportunities for younger community members to shape our town—together.

Our Action Plan

This Plan is organized into **five focus areas** that address our biggest opportunities for reducing emissions, storing carbon, and supporting adaptation to climate impacts. Topics in these areas overlap and taking action in one area can have a cascade of benefits and fulfill goals in other areas. In the following five chapters are goals, strategies, and actions listed with explanations of how each one relates to Yarmouth's climate targets.

EFFICIENT TRANSPORTATION AND LAND USE

VISION	WHAT'S INCLUDED
Yarmouth's infrastructure and land use patterns prioritize natural and social connections, facilitate biking and walking, and make it easy for people to use public transportation and electric vehicles.	• Infrastructure for walking & biking • Electric vehicles • Public transportation • Land use policy

HEALTHY BUILDINGS AND RENEWABLE ENERGY

VISION	WHAT'S INCLUDED
Yarmouth's buildings are efficient, healthy, and fossil-fuel free and we maximize the use of local renewable energy while investing in—and advocating for—a renewable energy grid that is resilient and affordable for all.	• Energy efficiency • Local renewable energy, energy supply & grid resilience • Policies guiding new development

CIRCULAR ECONOMY

VISION	WHAT'S INCLUDED
Yarmouth manages resources sustainably through an efficient circular economy that reduces waste by maximizing the lifecycle of material goods, reducing consumption, and driving local innovation.	• Reuse systems & waste reduction • Recycling & composting • Waste policies

THRIVING NATURAL ENVIRONMENT

VISION	WHAT'S INCLUDED
Yarmouth ensures a resilient future by protecting and stewarding our valuable lands and waters to preserve essential ecosystems and absorb carbon dioxide from the atmosphere.	• Land conservation • Biodiversity & habitat protection • Land stewardship practices • Shores & waters

CONNECTED AND SAFE COMMUNITY

VISION	WHAT'S INCLUDED
Yarmouth residents and businesses are empowered with understanding health and safety risks from climate change, and the Town is proactively planning to minimize hazards from climate-exacerbated disasters.	• Emergency preparedness • Health & wellness • Neighborhood connections • Critical infrastructure

Efficient Transportation and Land Use

VISION

Yarmouth's infrastructure and land use patterns prioritize natural and social connections, facilitate biking and walking, and make it easy for people to use public transportation and electric vehicles.

Nearly half of our emissions come from cars. How we plan for neighborhoods, businesses, and services to connect with each other has a big role in shaping how we get around. We can reduce emissions from vehicles while supporting a thriving, connected community by shifting towards emissions-free transportation and fostering land use practices that aren't car-dependent.

KEY TERMS

Vehicle Miles Traveled (VMT) is the total distance covered by all vehicles in a specific area over a set time. This measurement helps assess our reliance on vehicles to get around.

Mobility refers to the ability to move easily from one place to another, typically describing the degree of freedom in movement around places. **Active mobility** refers to any form of transportation that involves physical activity, such as walking or biking.

Transportation accounts for 43% of Yarmouth's emissions. Gasoline powered passenger vehicles make up the majority of the total—followed by commercial vehicles. The municipal and school fleet contribute emissions at a much smaller scale.

Bringing transportation emissions down significantly will require reducing vehicle miles traveled (by making it easier for people to walk, bike, and take public transportation) and transitioning vehicles to zero emissions. Forward-thinking land use policies and development practices will balance the needs of our growing community and minimize how our built environment contributes to climate change over the long term.

The 2019 emissions data includes trips only *inside town boundaries*, meaning that the parts of our trips out of Yarmouth (for example: to work in Portland, for shopping trips to Freeport, etc) are not accounted for. To support state and national emissions-reduction goals, we aim to also support carbon-free ways to commute and get around in the region.

EQUITY & TRANSPORTATION

'Mobility equity' means that all community members can safely get where they need to go, regardless of physical or cognitive ability, age, income, or other factors. Active and public transportation not only reduce emissions, but also improve physical and mental health through movement and human interaction. Facilitating alternatives to gas-powered vehicles is not only good for the climate, but it is good for people, too.

OUR PROGRESS

- Major regional trail connections, the Beth Condon Pathway and Casco Bay Trail, are underway
- Town Complete Streets Policy and Committee created in 2015
- New housing located near public transit and trails and extension of sidewalks throughout town

BY THE NUMBERS

43%

of total emissions from transportation

30%

of total emissions from passenger vehicles, 12% from commercial vehicles, and 1% from buses

85%

of Yarmouth workers commute out of town for employment, and the same percentage of workers in town are not residents[16]

16. Camoin Associates and North Star Planning, 2023. Comprehensive Plan Update Market Analysis.

ACTION TABLE

The Yarmouth Climate Action Plan establishes the following goals, strategies, and actions for Efficient Transportation and Land Use.

Quick Win: Short-term actions that have the potential to maintain implementation momentum

High Impact: Actions that have the potential to get us the furthest toward the Town's goals

Impact Type: Action primarily supports Mitigation (M) or Adaptation (A)

Target Served: Action primarily supports achieving the 2030 Community target of 80% reduction (2030 C), the 2030 Municipal target of net zero (2030 M), or the 2050 Community target for net zero (2050) or accelerates adaptation and resilience strategies (R)

	Quick Win or High Impact	Impact Type	Target Served
Goal 1: Reduce emissions from transportation.			
Strategy 1.1: Expand infrastructure for accessible and safe walking, biking, and other active transportation.			
1.1.1: Complete a comprehensive, town-wide transportation planning process, resulting in an adopted implementation plan that includes non-motorized trail expansion, increased bike/walk infrastructure, and removal of parking requirements.		M A	2050
1.1.2: Facilitate the completion of the Beth Condon Memorial Pathway from Cumberland to Freeport and the Casco Bay Trail.	Quick Win	M	2050
Strategy 1.2: Increase public transit use.			
1.2.1: Expand public transportation infrastructure, integrated with bike and pedestrian routes, to increase frequency, accessibility, desirability, and connectivity of public transport options.		M	2050
1.2.2: Provide information for residents to reduce miles traveled for work and recreation.	Quick Win	M	2050
Strategy 1.3: Accelerate electric vehicle adoption.			
1.3.1: Establish a comprehensive EV outreach and education campaign for residents and local businesses.	Quick Win	M	2030 C
1.3.2: Establish a municipal electrical vehicle procurement plan that phases out purchases of fossil-fuel based vehicles by 2030, starting with passenger vehicles and moving to medium- and heavy-duty vehicles as feasible across departments.	High Impact	M	2030 M
1.3.3: Partner with the School Department to transition school bus fleet to all-electric.	High Impact	M	2030 M
1.3.4: Continue building out EV charging infrastructure on town and school properties to ensure EV charging capacity for an entirely electric fleet.		M	2030 M
Strategy 1.4: Expand public EV charging network.			
1.4.1: Expand EV charger requirement for parking lots and new site proposals to all zones in town.	Quick Win	M	2030 C
1.4.2: Facilitate and support the expansion of regional EV charging network with businesses.		M	2030 C

ACTION TABLE

The Yarmouth Climate Action Plan establishes the following goals, strategies, and actions for Efficient Transportation and Land Use.

Quick Win: Short-term actions that have the potential to maintain implementation momentum

High Impact: Actions that have the potential to get us the furthest toward the Town's goals

Impact Type: Action primarily supports Mitigation (M) or Adaptation (A)

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	Quick Win or High Impact	Impact Type	Target Served
Goal 2: Plan for future land use that reduces emissions and is resilient to climate impacts.			
Strategy 2.1: Strengthen policies and enforcement to promote sustainable, resilient, and accessible land use practices in coordination with Comprehensive Plan implementation.			
2.1.1: Amend zoning ordinances to reduce emissions by allowing for more dense, mixed-use areas close to transit and economic centers.	High Impact	M	2050
2.1.2: Establish criteria in subdivision, site plan, and Character-based Development Code to incorporate current climate data and manage adherence to land protection and stewardship goals.		A	R
Strategy 2.2: Increase tree canopy.			
2.2.1: Develop a plan to increase tree canopy cover throughout the community.		M	2050
2.2.2: Establish zoning ordinance and/or incentives that serve to protect mature trees and reduce lot clearing.	Quick Win	M	2050
Strategy 2.3: Support restoration of riverine and coastal ecosystems.			
2.3.1: Consider restoring the ecological function of the Royal River by removing all dams, pending a completed report from the Army Corps of Engineers.		A	R
2.3.2: Review the Royal River Corridor Plan (2009) and expand and update the Plan with a focus on climate resilience.		A	R
2.3.3: Promote guidance for protection/restoration of erodable bluffs, steep slopes, and shorelines using nature-based-solutions (regrading, tree-planting, retreat) for both private and town-owned lands.	Quick Win	A	R

The associated metrics in the Scorecard represent the data we will track in the coming years to measure progress on these strategies. There is an Implementation Blueprint developed for action 1.3.1.

FUNDING OPPORTUNITY EXAMPLES

There is federal, state, and local funding available to finance climate action projects and can help Yarmouth implement this Plan. Below are examples of funding opportunities.

Efficiency Maine is pursuing discretionary funding through the Federal Highway Administration to channel into rebates and grants for EV charging networks

EPA's Clean School Bus Program

Maine Jobs and Recovery Plan allocates $8 million to expand municipal and public charging stations

Maine Jobs and Recovery Plan has set aside $5 million to fund innovative public transportation options

Be Part of the Solution

1. Swap one local driving trip each week to walking or biking
2. Commute by public transportation or carpool
3. Switch your next car to electric—see rebates and resources from Efficiency Maine

LEADING BY EXAMPLE

Through the Village Streetscape Plan, the Town is implementing ongoing improvements to Main Street, such as curb extensions (pictured here), that visually and physically narrow the roadway, creating safer and shorter crossings for walkers while increasing the available space for street furniture, benches, plantings, and street trees.

Healthy Buildings and Renewable Energy

VISION

Yarmouth's buildings are efficient, healthy, preserved, and powered by renewable energy. We maximize the use of local renewable energy while investing in—and advocating for—a renewable energy grid that is resilient and affordable for all.

The way we generate and consume energy is at the core of climate change. Today, the majority of our energy consumption relies on fossil fuels, such as oil or gas for heating buildings, and electricity generated by fossil-fuel based power plants. Using less energy in our buildings and transitioning to renewable sources is key to addressing climate change.

Current emissions measurements don't include the "embodied carbon" in buildings, which are the emissions released to create building materials, construct buildings, and dispose of materials when buildings are demolished.

KEY TERMS

A **micro-grid** is a self-contained electrical network that allows you to generate electricity on-site and use it when you need it most, like when the grid goes down or prices peak.

Renewable energy is energy from a source that is not depleted when used, such as wind or solar power.

Weatherization projects reduce the amount of heat lost from a building by updating the building's infrastructure, such as adding insulation or updating windows. Retaining heat for longer can save money and energy.

Buildings in Yarmouth, including both homes and commercial buildings, account for 50% of our total emissions. This includes emissions from the electricity we use, as well as from the fuel used to heat them.

To reduce emissions from buildings, we need to maximize the efficiency of new and existing buildings, minimize climate impacts from construction and renovation, and ensure homes and businesses are powered, heated, and cooled by renewable energy sources, such as solar. The Town can tackle the first two steps by promoting weatherization and thoughtful retention and reuse of building materials for residential and commercial buildings in town. To reduce emissions from operating buildings, the state's efforts to supply the electricity grid fully from renewable sources by 2050 will support our targets. At the same time, reliability of the grid will become even more critical. The Town can support reliable and resilient electrical infrastructure through evaluating opportunities for battery storage, distributed generation, micro-grids, and supporting related state policies.

To prepare for the expected impacts of climate change, buildings in Yarmouth must also be resilient to heavier storms, potential flooding, and bigger temperature swings.

EQUITY, BUILDINGS, & ENERGY

The cost of energy has historically been in flux—often burdening those with least resources to bounce back. As we transition our buildings to renewable energy sources, we must do so with a focus on affordability and equity. Efficiency Yarmouth is a Town rebate pilot program that aims to support low and moderate residents to invest in electric heating solutions for their homes. Yarmouth's Affordable Housing Committee is also a resource for helping maintain affordable housing that is energy efficient and affordable to operate.

OUR PROGRESS

- Viable sites for community solar assessed by CEES
- All town street lights LED, reducing energy consumption by 64% and saving 81% in annual operating costs
- 92% of the Town and school's current electricity use is produced with Maine solar energy through a Power Purchase Agreement (PPA)
- Established an Affordable Housing Committee and Historic Preservation Committee, with related Town ordinances passed

BY THE NUMBERS

29%

of total emissions comes from operating homes and 20% comesl from businesses. Most of these emissions are from fossil fuels used for heat.

61%

of homes use fuel oil or kerosene for heat, 13% use propane, and 14% use natural gas[17]

In 2022, Yarmouth residents received

314

heat pump rebates from Efficiency Maine and 79 weatherization rebates

17. Yarmouth Vulnerability Assessment, GPCOG, 2023

ACTION TABLE

The Yarmouth Climate Action Plan establishes the following goals, strategies, and actions for Healthy Buildings and Renewable Energy.

Quick Win: Short-term actions that have the potential to maintain implementation momentum

High Impact: Actions that have the potential to get us the furthest toward the Town's goals

Impact Type: Action primarily supports Mitigation (M) or Adaptation (A)

Target Served: Action primarily supports achieving the 2030 Community target of 80% reduction (2030 C), the 2030 Municipal target of net zero (2030 M), or the 2050 Community target for net zero (2050) or accelerates adaptation and resilience strategies (R)

	Quick Win or High Impact	Impact Type	Target Served
Goal 3: Reduce emissions from buildings while making homes and businesses resilient to climate change.			
Strategy 3.1: Actively promote weatherization, efficiency, electrification, and other emission-reducing upgrades in existing buildings			
3.1.1: Adopt a Commercial PACE ordinance and develop materials to support use of residential and commercial programs.	Quick Win	M	2050
3.1.2: Phase in an Energy Benchmarking Ordinance for large commercial, residential, and municipal and school facilities that begins with a pilot benchmarking program with businesses.	High Impact	M	2050
3.1.3: Expand and promote resources for upgrading historic buildings.	Quick Win	M	2050
3.1.4: Continue and expand Efficiency Yarmouth as a resource for residents.		M A	2050
Strategy 3.2: Require new construction and major renovations to meet the highest standards for efficiency, carbon neutrality, and climate resilience by 2030.			
3.2.1: Require and support new development and major renovations (including municipal and school) to be powered by renewable energy and climate resilient from 2030 on.	High Impact	M A	2050
3.2.2: Adopt the optional Maine Energy Stretch code IECC 2021 and advocate with the State for advancing energy codes in the future.	High Impact	M	2050
3.2.3: Integrate renewable energy and efficiency in affordable housing developments, with a focus on reducing housing costs for tenants.	Quick Win	M	2050
Strategy 3.3: Adapt municipal and school buildings to climate resilient, zero emission facilities.			
3.3.1: Develop and fund a plan for all school and municipal facilities to maximize energy efficiency and be powered by renewable energy by 2030.	High Impact	M	2030 M
3.3.2: Explore adopting a Carbon Shadow Price for addressing emissions produced through municipal capital investments.		M	2030 M
Goal 4: Meet 100% of electricity needs with renewable energy.			
Strategy 4.1: Foster development of reliable local renewable energy systems.			
4.1.1: Require all new large developments (commercial, residential, or municipal) to evaluate feasibility of district energy or microgrids powered by renewable energy.		M A	R
4.1.2: Develop and implement a Resilient Power Plan to ensure critical facilities in town have renewable backup power.		A	R
Strategy 4.2: Reduce barriers to implementing renewable energy.			
4.2.1: Remove barriers in zoning/permitting of renewable energy generation and storage systems, such as implementing policies and practices necessary to achieve SolSmart Gold level certification (or equivalent).	Quick Win	M	2050
4.2.2: Develop, incentivize and celebrate local renewable energy generation and storage.		M A	2030 C
4.2.3: Provide and maintain publicly available resources for residents to facilitate renewable energy adoption.	Quick Win	M	2030 C
4.2.4: Develop requirements and design guidance for on-site renewable energy generation and electrification in new construction and major renovations.	High Impact	M	2050
4.2.5: Advocate to position the Wyman station facility to support the town's climate action goals.		M A	2050
Strategy 4.3: Pursue 100% renewable energy reliance for government operations.			
4.3.1: Build upon current Municipal and School Power Purchase Agreement to meet 100% of current and forecasted electricity needs with renewable energy.	Quick Win	M	2030 M

The associated metrics in the Scorecard represent the data we will track in the coming years to measure progress on these strategies. There is an Implementation Blueprint developed for action 3.3.1.

FUNDING OPPORTUNITY EXAMPLES

There is federal, state, and local funding available to finance climate action projects and can help Yarmouth implement this Plan. Below are examples of funding opportunities.

Efficiency Maine is the primary distributor of energy efficiency, weatherization, and building electrification rebates and grants

Energy Efficiency Revolving Loan Fund Capitalization Grant provides money to the state to support residential and commercial energy efficiency projects

State biennial budget has funds to support power sector transformation, grid modernization and offshore wind

Energy Efficiency and Conservation Block Grant Program (EECBG) provides grants to communities for clean energy programs and projects

Maine Jobs and Recovery Plan has set aside $50 million to match funds for municipal efficiency projects

Energy Storage Demonstration and Pilot Grant Program

Be Part of the Solution

1. Electrification and efficiency rebates for homeowners, businesses, and renters at Efficiency Maine
2. Learn about installing solar
3. Get tips on saving energy and money at home
4. Get tips on making your older home more sustainable

LEADING BY EXAMPLE

317 Main, the beloved music center in the heart of the village, expanded its rooftop solar array as part of its recent "Raise the Barn" campaign. According to Director of Finance Edward Tittmann, "solar was a bit of a no-brainer. The system provides $8,000 worth of electricity at today's prices, working out to a risk-free 10-year payoff." Yarmouth residents, businesses, and nonprofits can take advantage of federal incentives which make renewable energy projects even more cost-effective.

Circular Economy

VISION

Yarmouth manages resources sustainably through an efficient circular economy that reduces waste by maximizing the lifecycle of material goods, reducing consumption, and driving local innovation.

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, whether those are trees, oil, water or metal. By transforming how we consume products and manage waste we can reduce emissions, save families money, keep our environment clean, and empower our local economy.

KEY TERMS

The **circular economy** is a system where the natural environment is regenerated by ensuring that human made materials never become waste by keeping materials and products in circulation through processes like reuse, refurbishment, maintenance, remanufacture, and composting.

Linear Economy refers to our current economic model in which finite resources are extracted to make products that are used and then thrown away.

Refurbishing is a process to return a product to good working order by repairing or replacing components, updating specifications, and improving appearance.

Our economy is largely based on using finite resources in a linear process. We use—then dispose of—materials that ultimately pollute our environment and account for 7% of Yarmouth's total emissions. We acknowledge that the 2019 emissions baseline does not include the upstream impacts of waste: emissions created when products are made, transported, and stored[18]. To tackle these emissions, we can transform our "throw away" culture and change consumption habits, keep products such as clothing, furniture, packaging and household products in use for longer, and foster economic innovation that doesn't depend on the consumption of limited resources.

To effectively respond to the urgency of the climate crisis, Yarmouth must move beyond a primary emphasis on recycling to place even greater emphasis on reducing and reusing all materials. If we move quickly to create an effective circular economy, we will reduce direct emissions from town waste and also minimize emissions from the lifecycle of everyday items we use.

EQUITY & WASTE

Underserved communities in Maine and beyond have been unfairly burdened with the negative environmental, financial, and health impacts caused by a linear economy. A circular economy can benefit Yarmouth residents by providing affordable alternatives to consumption and contributing to a strong and diverse local economy. At the same time, actions in Yarmouth to reduce waste that we send out of our community can lessen health risks from waste and manufacturing processes that are often located in or near low-income communities.

OUR PROGRESS

- Yarmouth is an owner-member community of EcoMaine
- Town added drop-off bins for donating clothing and shoes
- In 2023 Town implemented a Pay As You Throw Program to incentivize reducing waste

BY THE NUMBERS

In 2019, Yarmouth's recycling rate of

33.7%

was similar to Maine's statewide recycling rate of 33.9%

The total tons of trash decreased

34%

in the 6 months after the Pay-As-You-Throw (PAYT) program was introduced, compared with the previous year

50%

of glass produced, 10% of wood harvested, 20% of aluminum mined, 40% of plastic created goes primarily to make single-use packaging[19]

18. According to the United Nations, natural resource extraction and processing contribute to about half of all global greenhouse gas emissions.
19. The New Reuse Economy, Upstream

ACTION TABLE

The Yarmouth Climate Action Plan establishes the following goals, strategies, and actions for Circular Economy.

Quick Win: Short-term actions that have the potential to maintain implementation momentum

High Impact: Actions that have the potential to get us the furthest toward the Town's goals

Impact Type: Action primarily supports Mitigation (M) or Adaptation (A)

Target Served: Action primarily supports achieving the 2030 Community target of 80% reduction (2030 C), the 2030 Municipal target of net zero (2030 M), or the 2050 Community target for net zero (2050) or accelerates adaptation and resilience strategies (R)

	Quick Win or High Impact	Impact Type	Target Served
Goal 5: Reduce community waste.			
Strategy 5.1: Minimize waste and prioritize sustainable consumption.			
5.1.1: Phase out single use materials in commercial spaces by adopting single use item bans and promoting reuse systems.		M	2050
5.1.2: Launch a business recognition and outreach program to provide resources for businesses to reduce waste.	Quick Win	M	2050
5.1.3: Adopt a Municipal Sustainable Purchasing Policy.	Quick Win		2030 M
5.1.4: Assess opportunities to reduce waste from town operations and facilities by tracking waste and developing a zero waste plan.			2030 M
Strategy 5.2: Promote a circular resource sharing economy.			
5.2.1: Develop a library of things that serves as a space to foster opportunities for residents to reuse, repair, and create items and materials.		M	2050
Strategy 5.3: Expand reuse, recycling and composting infrastructure, services, and education.			
5.3.1: Phase in requirements for composting at businesses and apartment buildings that promotes reuse solutions over single use bioplastics.	High Impact	M	2050
5.3.2: Require recycling in commercial and multifamily residential buildings by 2026.	High Impact	M	2030 C
5.3.3: Explore construction and demolition waste ordinance.		M	2050
5.3.4: Enact strategies to minimize waste at Clam Festival and strive to reach zero waste event standards by 2030.		M	2030 C

The associated metrics in the Scorecard represent the data we will track in the coming years to measure progress on these strategies. There is an Implementation Blueprint developed for action 5.1.1.

FUNDING OPPORTUNITY EXAMPLES

There is federal, state, and local funding available to finance climate action projects and can help Yarmouth implement this Plan. Below are examples of funding opportunities.

USDA Compost and Food Waste Reduction (CFWR) pilot projects to support food waste diversion

EPA Recycling Education and Outreach Grant Program to encourage recycling through education

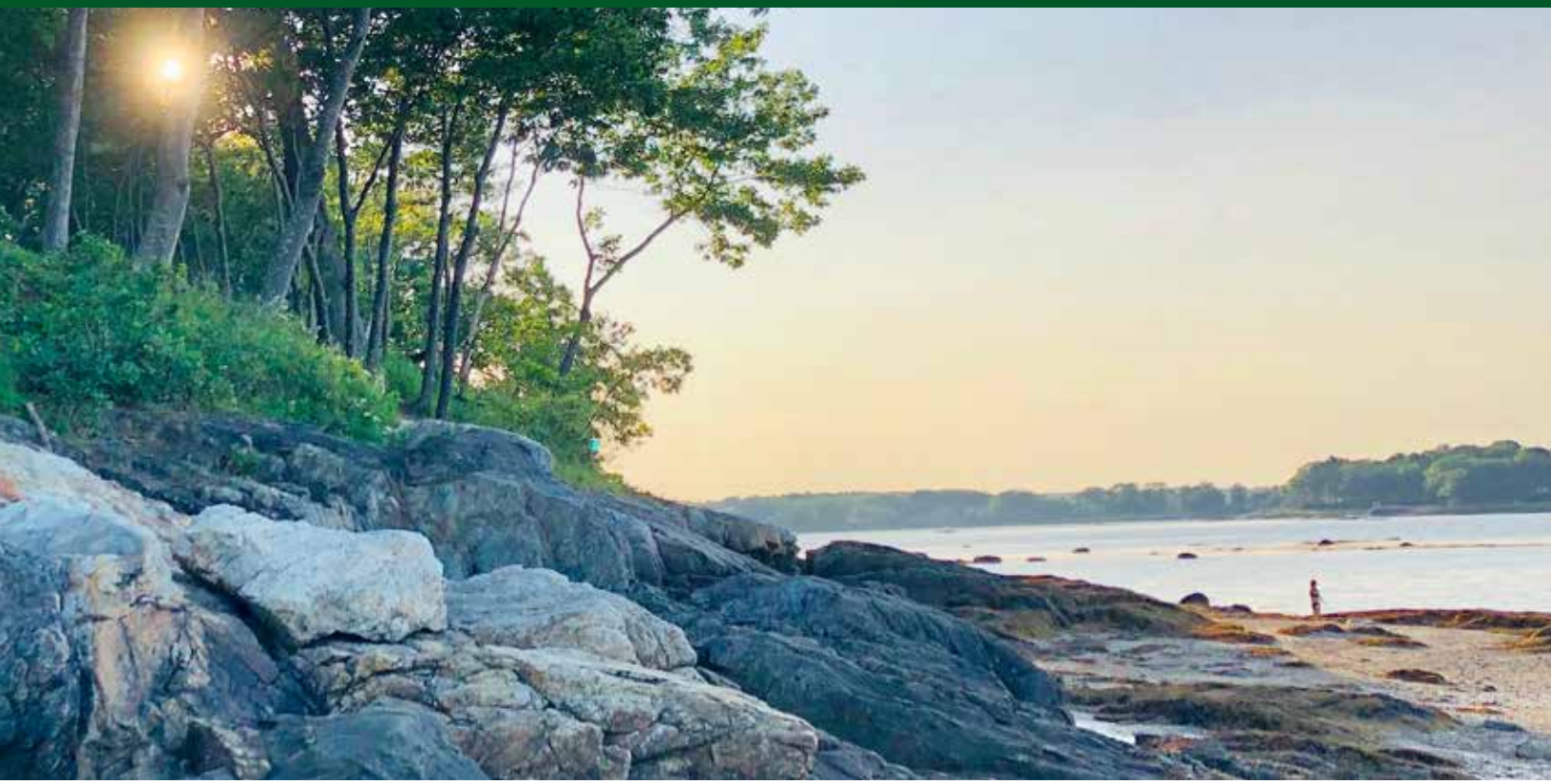
EPA Solid Waste Infrastructure for Recycling Grants for Communities to support building a circular economy

Be Part of the Solution

1. Learn more about what a Circular Economy looks like
2. Reuse 101 from Upstream
3. Zero Waste Purchasing Guide from YHS Environmental Action Club

LEADING BY EXAMPLE

In 2022, Yarmouth high school student Maya Faulstich recognized the need to help reduce waste generated at events. She founded the Yarmouth High School Environmental Action Club's 'Dishes on Demand' program which provides reusable plates, cups, and utensils for school and community events and dinners. The program earned a finalist award in National Geographic's Global Slingshot Challenge and has prevented nearly 5,000 plates, cups, and utensils from being thrown away over one year.



Thriving Natural Environment

VISION

Yarmouth ensures a resilient future by protecting and stewarding our valuable lands and waters to preserve essential ecosystems and absorb carbon dioxide from the atmosphere.

We seek refuge and recreation in forests, fields and coastal areas, and many of us have livelihoods that depend upon their continued health. Undeveloped areas house essential species of native plants and animals which rely upon each other in complex ways. Forests, grasslands, salt marshes, estuaries, and kelp beds are all important allies in the work to decrease the amount of carbon dioxide in the atmosphere. We must take steps to conserve, restore, and steward these essential ecosystems.

KEY TERMS

Stewardship: Borrowing from indigenous models which emphasize the interconnectedness of all species and the importance of place, stewardship focuses on preserving the health of our ecosystem through measures such as protecting wildlife corridors, removing invasive species, and preventing water and soil contamination.

Land conservation: Setting aside parcels of land for permanent protection through fee acquisition or a conservation easement, a binding legal agreement with accompanying tax benefits that protects natural resources.

Marsh migration: As sea levels rise, marshes gradually shift inland to formerly dry land. Sea level rise threatens to drown tidal marshes and adjacent development can inhibit natural migration.

Our state's natural and working lands play an important role in capturing carbon and helping slow the pace of global warming[20]. In line with the state's goal to increase total acreage of conserved lands to 30% by 2030[21], municipalities and land trusts are stepping up land protection efforts. Permanent protection for natural lands and waters will sequester carbon, support biodiversity, insulate us against severe weather and sea level rise, and protect the health of our community as it continues to grow.

Aside from conserving land, it is also essential that we adopt evidence-based policies and practices for land use and development, so that we ensure the continued vitality of our environment. Clear steps can be taken—by Town government, community stakeholders, and private citizens—to identify our carbon sequestration capacity, increase our mature tree canopy, restore the ecological function of our rivers, prioritize habitat corridors, reduce invasive species, and allow for marsh migration over time.

EQUITY & NATURAL RESOURCES

Land conservation ensures that all residents, regardless of property ownership, will have regular access to clean air, clean water, and the open space we rely upon for refuge and recreation. Access to safe walking and biking trails allows for lower transportation costs for families within the community. In addition, land conservation helps protect residents from the risks of flooding and other impacts of severe storms, which often lead to costly repairs. Protecting open space while guiding future development to areas that already have public infrastructure serves to stabilize local property taxes for existing residents by avoiding the cost of increased public services.

OUR PROGRESS

- In 2019, Yarmouth completed an Open Space Plan, which provides a well-considered list of suggested actions for the mindful use and protection of open space. Much of this plan has yet to be implemented.
- In 2023, the Tree Advisory Committee spearheaded a new initiative to restore riparian areas in Royal River Park
- Tree Advisory Committee created in 2022 to promote the conservation and stewardship of trees on town lands
- 95 acres of town land treated for invasive species in 2021 and 2022

BY THE NUMBERS

As of 2023,

12%

of land (1,030 acres) in Yarmouth is designated as open space, and only 4% (354 acres) is permanently protected by a third party easement.

450

additional acres are a top priority to protect, according to the 2019 Yarmouth Open Space Plan.

Protecting 2,566 acres (30% of Yarmouth) could sequester more than 9,000 MT of carbon per year (based on 3.6 tons/ acre rate)[22]

The waters around Yarmouth lost over

100

acres of eelgrass between 2013 and 2021. Eelgrass is a native seagrass that provides habitat, supports water quality, and sequesters carbon.

20. Maine Won't Wait Annual Report, Maine Climate Council, 2023
21. Maine Won't Wait, Maine Climate Council, 2020
22. More specific estimates of carbon sequestration rates and overall carbon storage need to be completed for Yarmouth's conserved lands.

ACTION TABLE

The Yarmouth Climate Action Plan establishes the following goals, strategies, and actions for Thriving Natural Environment.

Quick Win: Short-term actions that have the potential to maintain implementation momentum

High Impact: Actions that have the potential to get us the furthest toward the Town's goals

Impact Type: Action primarily supports Mitigation (M) or Adaptation (A)

Target Served: Action primarily supports achieving the 2030 Community target of 80% reduction (2030 C), the 2030 Municipal target of net zero (2030 M), or the 2050 Community target for net zero (2050) or accelerates adaptation and resilience strategies (R)

	Quick Win or High Impact	Impact Type	Target Served
Goal 6: Permanently conserve 30% of Yarmouth land by 2050.			
Strategy 6.1: Identify resources and build a clear process for local land conservation.			
6.1.1: Assess and prioritize new conservation opportunities, using the Yarmouth Open Space Plan (2019) as a prioritization guide, with a focus on connectivity, carbon storage, habitat, and public access.		A	2030 C
6.1.2: Increase the town's Land Acquisition Fund to a minimum of $1 million, funded through a Land Bond, grants, and/or annual town budget allocations.	High Impact	M	2030 C
6.1.3: Assess town-owned lands for permanent protection.	Quick Win	M	2030 C
Strategy 6.2: Protect properties through purchase or easement with willing landowners, or through partnerships.			
6.2.1: Utilize funds to permanently protect prioritized Town-owned lands.		M	2050
6.2.2: Partner with willing landowners to permanently conserve land that sustains or enhances carbon sequestration and improves climate resiliency.	High Impact	A	2050
Goal 7: Adopt stewardship practices that increase carbon storage and enhance the ecosystem's resilience to climate change.			
Strategy 7.1: Manage all town-owned Open Space for climate resilience and to maximize carbon sequestration.			
7.1.1: Add sections on climate resilience and carbon storage to existing management plans for all town-owned Open Space and include these sections in plan updates moving forward.		M A	2050
7.1.2: Develop a dedicated Stewardship Fund for Town-owned open spaces, to be funded through private and public contributions.		A	R
Strategy 7.2: Manage invasive plant species.			
7.2.1: Implement and update the Three-year Invasive Vegetation Management Plan to include all town and school vegetation management practices.		A	R
7.2.2: Develop subdivision ordinance requirements for invasive species management plans.		A	R
7.2.3: Incentivize invasive species management by private landowners and HOAs through education and outreach.		A	R
Strategy 7.3: Support sustainable landscaping by private landowners.			
7.3.1: Promote resources for individual residents and business owners to engage in sustainable landscaping to absorb stormwater, protect wetlands and local ecology.	Quick Win	M A	R
7.3.2: Develop protective rules and incentives to reduce or eliminate ecosystem damaging fertilizer, pesticides, and toxic contaminants reaching our lands and waters.		A	R

The associated metrics in the Scorecard represent the data we will track in the coming years to measure progress on these strategies. There is an Implementation Blueprint developed for action 6.1.1.

FUNDING OPPORTUNITY EXAMPLES

There is federal, state, and local funding available to finance climate action projects and can help Yarmouth implement this Plan. Below are examples of funding opportunities.

National Coastal Resilience Fund awards funding to improve environmental resilience and protect coastal wildlife habitats

State biennial budget has funds to upgrade municipal culverts at stream crossings

USDA Community Forest and Open Space Conservation Program

Be Part of the Solution

1. Consider enrolling your natural or working lands in Maine's current use tax program and/or establishing a conservation easement
2. Learn more about sustainable landscaping with Maine Audubon's Bringing Nature Home program or Wild Seed Project
3. Experiment with ideas for rewilding your lawn, in favor of biodiversity and native plants

LEADING BY EXAMPLE

The Cousins River Fields and Marsh Preserve is an 82-acre property that was recently acquired by Maine Coast Heritage Trust (MCHT) in partnership with the Freeport Conservation Trust (FCT) and the Royal River Conservation Trust (RRCT), with support from the Town of Yarmouth. This project is a great example of the success that can happen when conservation groups come together to protect land critical to mitigating the effects of climate change. And thanks to previous years of extensive conservation work, this addition creates a 220-acre conserved marsh system that will be critical to buffering sea level rise and mitigating other effects of climate change.

Connected and Safe Community

VISION

Yarmouth residents and businesses are empowered with understanding health and safety risks from climate change, and the Town is proactively planning to minimize hazards from climate-exacerbated disasters.

Hazards from a changing climate - such as sea level rise and more frequent and intense storms - will bring a cascade of impacts across our community. We have an opportunity to protect the people and places of Yarmouth while fostering a connected, empowered, and just community for all.

KEY TERMS

Public health is the science and practice of promoting and protecting the well-being of communities through the prevention of diseases, promotion of healthy behaviors, and assurance of environmental and social conditions that support health.

Climate change causes a wide range of public health and safety concerns for both physical and mental wellbeing. The burden of climate change will not be felt equally across the community. People with existing social vulnerabilities, such as seniors or cost-burdened households, will be disproportionately impacted by climate hazards and climate-related health risks such as extreme heat.

We can take steps to protect the services and infrastructure our community depends on while preparing for intensifying impacts of a changing climate. In doing this, we will strive to ensure everyone has access to the resources they need during emergencies and our community is able to be resilient to general disruptions and longer-term challenges.

EQUITY, HEALTH, & CLIMATE

Climate change disproportionately affects people with fewer resources. From acute emergencies like power outages and flood damage to homes, to more indirect impacts like volatile energy costs and a rise in diseases like Lyme, climate change influences human health and wellbeing in many ways.

OUR PROGRESS

- Yarmouth Community Garden is the largest community garden contributor to Maine Harvest for Hunger program
- Town has CodeRED, a high speed emergency notification system
- Yarmouth police offer a Reassurance Program of wellbeing checks to senior citizens, adults living alone, the infirm, or the disabled within our community

BY THE NUMBERS

25%

of Yarmouth adults over 65 live alone[23]

38.4%

of total households are cost burdened (spend more than 30% of income on housing)[24]

Yarmouth can expect

20–30

more days

each year of high heat (over 90 degrees) by 2050[25]

23. Yarmouth Vulnerability Assessment, GPCOG, 2023
24. Yarmouth Vulnerability Assessment, GPCOG, 2023
25. NOAA Climate Resources

ACTION TABLE

The Yarmouth Climate Action Plan establishes the following goals, strategies, and actions for Connected and Safe Community.

Quick Win: Short-term actions that have the potential to maintain implementation momentum

High Impact: Actions that have the potential to get us the furthest toward the Town's goals

Impact Type: Action primarily supports Mitigation (M) or Adaptation (A)

Target Served: Action primarily supports achieving the 2030 Community target of 80% reduction (2030 C), the 2030 Municipal target of net zero (2030 M), or the 2050 Community target for net zero (2050) or accelerates adaptation and resilience strategies (R)

	Quick Win or High Impact	Impact Type	Target Served
Goal 8: Protect public safety by integrating climate projections into emergency preparedness protocols.			
Strategy 8.1: Enhance the community's preparedness for heat waves and intensifying storms.			
8.1.1: Develop a local Hazard Mitigation and Heat Wave Management Plan and implement protocols that address disasters such as intense storms, heat waves, and extended power outages.	High Impact	A	R
8.1.2: Enhance early warning systems and community evacuation plans.		A	R
8.1.3: Map town services to identify potential gaps in access for all, especially underrepresented populations.		A	R
8.1.4: Assess town-owned open spaces and waterways for capacity for increased use during more high heat days, and plan for safe and equitable access.		A	R
Strategy 8.2: Plan for the impact of sea level rise and flooding.			
8.2.1: Complete the Maine Flood Resilience Checklist and develop an implementation plan to reduce impacts from sea level rise and riverine flooding.		A	R
8.2.2: Revise the floodplain management ordinance to incorporate the anticipated FEMA maps and ensure additional adjustments account for climate change.	Quick Win	M	R
8.2.3: Develop a Working Waterfront Strategic Plan to assess needs for supporting coastal commercial establishments in town, including practices that address climate change mitigation or adaptation.		M A	R
8.2.4: Inform residents and businesses of the potential damage from floods and sea level rise.		A	R
Strategy 8.3: Prepare for long-term viability of town drinking water supply.			
8.3.1: Collaborate with Yarmouth Water District to assess resilience of town water supply quality and quantity based on climate modeling.		A	R
Goal 9: Enhance public health to improve community resilience to climate change.			
Strategy 9.1: Pursue equitable access to resources on climate-related health risks.			
9.1.1: Cultivate neighborhood hubs to share climate, energy, and resilience resources, utilizing the neighborhood model developed in response to the COVID-19 pandemic.		A	R
9.1.2: Develop a community atlas for town organizations and resources, including resilience resources, adaptation tools, and public health and safety information.	Quick Win	A	R
9.1.3: Launch a campaign to educate residents on impacts of climate change to mental and physical health.	Quick Win	A	R
9.1.4: Partner with local health and wellness service providers, including educators, to promote access to resources that address chronic stressors, including mental health services.		A	R
Strategy 9.2: Promote local food production and consumption.			
9.2.1: Adopt policies that help preserve existing agriculture operations, facilitate new food production, and support local food distribution systems.		A	R
Strategy 9.3: Improve access for Yarmouth residents to open space.			
9.3.1: Complete mapping analysis to identify residents further than a ten-minute walk from green space (public lands, conserved areas, parks, etc.) and integrate into land use planning.		A	R
Goal 10: Protect critical infrastructure.			
Strategy 10.1 Evaluate and improve at-risk public infrastructure.			
10.1.1: Conduct a vulnerability impact assessment incorporating projected climate impacts for at-risk public works infrastructure (e.g. water, sewer, culverts, roads, bridges) then develop priorities for investment.		A	R
10.1.2: Follow the CoastWise manual guidelines for evaluating, designing and replacing climate-resilient tidal crossings.		A	R
10.1.3: Assess public waterfront infrastructure and town-owned shorelines for vulnerability to sea level rise projections and incorporate appropriate upgrades into capital strategies.		A	R

The associated metrics in the Scorecard represent the data we will track in the coming years to measure progress on these strategies. There is an Implementation Blueprint developed for action 8.2.3.

FUNDING OPPORTUNITY EXAMPLES

There is federal, state, and local funding available to finance climate action projects and can help Yarmouth implement this Plan. Below are examples of funding opportunities.

FEMA BRIC and Hazard Mitigation Grants for projects that reduce risks from disasters

Shore and Harbor Planning Grants for resilient waterfront infrastructure

Coastal Community Grants for coastal resilience and marine economy

Maine Infrastructure Adaptation Fund to adapt critical infrastructure to reduce vulnerability to climate change

Be Part of the Solution

1. Donate or get involved with Yarmouth Cares about Neighbors (YCAN)
2. Learn more about how climate change impacts health and wellbeing
3. Sign up to receive CodeRED town alerts during a local emergency

LEADING BY EXAMPLE

During the height of the COVID-19 pandemic, the Town organized a network of neighborhood "community hubs" to share information and resources to residents. This is a successful model for how we can leverage community connections to enhance resilience, keep people safe, and adapt quickly in emergencies.

Moving Forward to Implementation

This Climate Action Plan will be a dynamic, living document that will evolve with Yarmouth.

To successfully accomplish strategies outlined in this Plan, Town staff, stakeholders, and the wider community will need to actively lead its implementation. The Climate Action Plan is not meant to sit on a shelf, but to be integrated into annual work plans, capital budgets, decision making processes, and regional collaborations. The following sections address key elements for implementation, such as resources and roles, the importance of tracking and sharing progress, maximizing collaboration opportunities, building capacity, and aligning with State and regional efforts.

Establish Resources and Roles for Implementation

Restructure the existing Committee for Energy Efficiency and Sustainability (CEES) to focus on implementing the Climate Action Plan. Institutionalize the role of student representatives and include a diversity of voices.

Hire a full time Sustainability Director to liaise with the new committee, oversee existing and future climate programs, implement comprehensive outreach on climate-related topics, integrate within regional partnerships, pursue grant funding, and be a point of contact for community members and stakeholders.

Track and Share Progress

This Plan is a framework for the Town to implement, refine, and update over the years. To facilitate implementation, each goal is associated with metrics of success. Metrics and other progress updates will be shared and celebrated to foster a culture of civic engagement.

Track progress on key metrics annually and present them to the Town Council to inform the annual budget cycle.

Conduct a deeper review of the plan, including GHG Inventory, every 3 years in order to increase attention to areas that are falling short. Strategies and actions will be revised where context, technology, funding opportunities, or community priorities have changed in order to strengthen the plan's ability to guide the Town Council toward meeting the 2030 and 2050 targets.

Maximize Internal Collaboration

The Town's ability to implement actions in this Plan will require coordination and joint responsibility across Town departments and voluntary resident committees. Consistent and proactive collaboration among these stakeholders will be necessary for success.

- Continue and expand municipal alignment with the School Department and School Board to pursue 2030 emissions goals and support broader school engagement with climate action.
- Develop a structure for liaisons across departments and committees/boards to regularly collaborate on climate actions.
- Empower new voices to be part of implementation. Town leadership can help bring together a wide-range of internal Town stakeholders to move projects forward.

Meeting the challenge of climate change through civic engagement and partnership.

Strive to be a Regional Collaborator

Meeting both Town and State climate goals will require strong regional collaboration. Yarmouth can share successes and challenges, learn from our neighbors, and explore regional or public-private partnerships to move actions forward. The Town should continue integrating into regional projects, adopt policies to support regional and state priorities, and rely on updated State data, assessments, and analysis, including work of the Maine Climate Council (MCC).

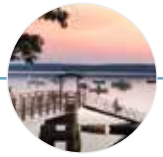
In 2024, the MCC is beginning work to update Maine Won't Wait - Maine's Climate Action Plan.

Build Capacity with Resources and Education

The full implementation of this plan is contingent upon the support of Yarmouth residents and businesses. Certain actions in this plan necessitate that Yarmouth community members adopt new behaviors and adjust to new policies, which may impact their daily lives. The Town recognizes the challenges that these transitions may present and is dedicated to empowering our community with education and resources where possible to make this process smoother. The actions within this Plan identify a few areas where the Town can provide information, connection to external resources, or, in some cases, financial incentives to support the transition.

Center Equity and Inclusion Throughout Implementation

As core values of the Town and this Plan, Equity and Inclusion will be prioritized throughout implementation. This means that before implementing new policies, projects, or budget proposals, the Town will carefully assess who may be affected, how stakeholders can provide feedback, and what measures can be taken to help rectify existing inequalities. This includes partnering with local Indigenous organizations and YCARE to include their perspectives for planning and implementation.



Ensure a Financially Responsible Approach

The Town is mindful of the fact that some of the actions in the Plan will require some amount of funding to fully implement. To meet our 2030 target and longer-term goals, we will need to make consistent progress, adapt to new solutions, and maximize external funding sources. To ensure that the Town continues to be a responsible steward of taxpayer dollars, the Town will:

- Employ a strategic approach to implement actions when it's both technologically and economically feasible, taking into account the long-term costs of inaction;
- Optimize maintenance as an opportunity to enhance efficiency, resilience and sustainability of municipal buildings, vehicles, and infrastructure;
- Explore available funding opportunities at state and federal levels and through private and philanthropic organizations to finance actions.

Leverage Implementation Blueprints

To aid Town staff and committees in implementing the plan, YCAT developed Implementation Blueprints for selected priority actions. These blueprints detail the specific steps that will be taken to implement the action, as well as identify lead entities, external partners, funding opportunities, and equity considerations. The Town can continue to use this template for developing work plans for the remaining actions.