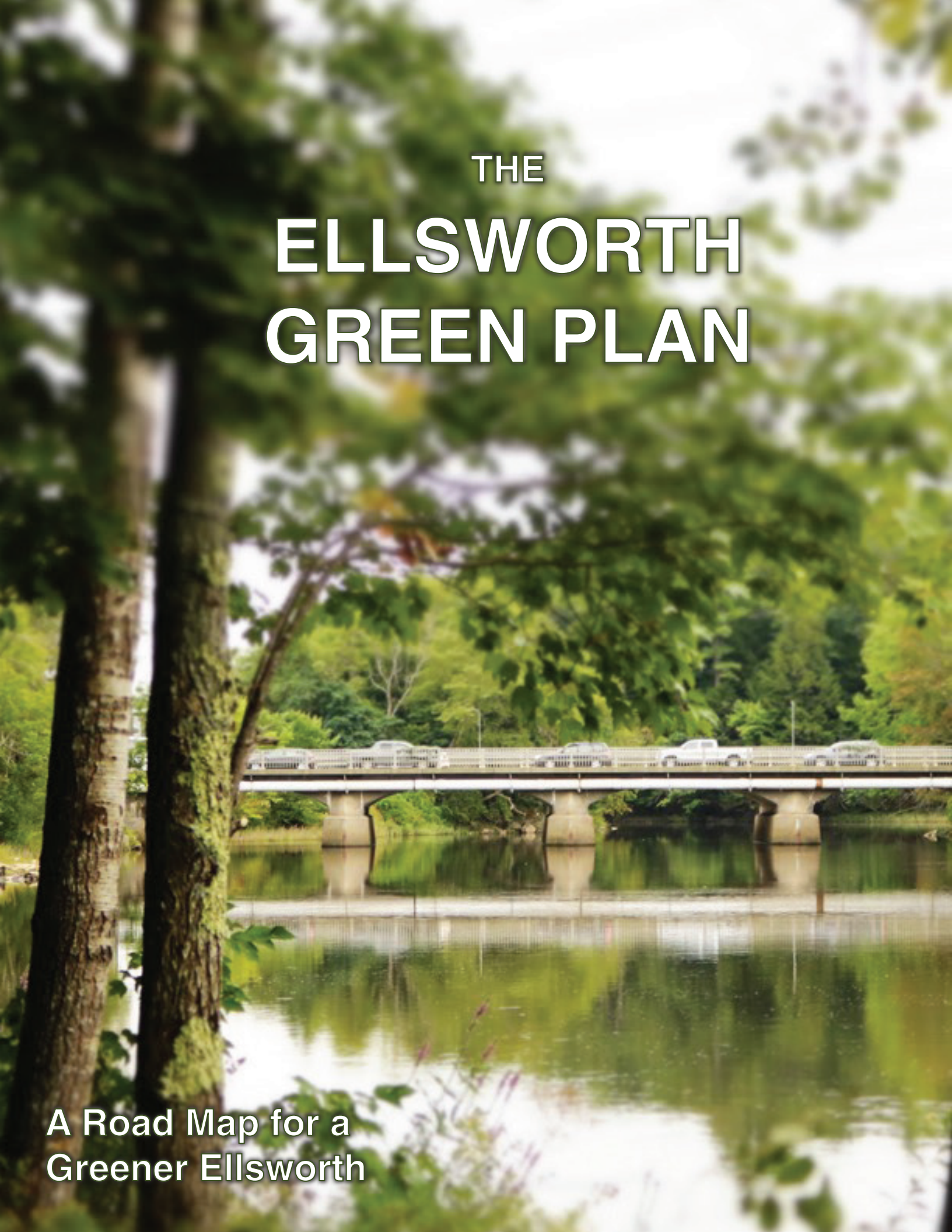

THE ELLSWORTH GREEN PLAN

A Road Map for a Greener Ellsworth

Cover photo by Nick Navarre

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A GREEN PLAN
FOR THE
CITY OF ELLSWORTH

Consultation Draft
February 2021

A CITIZENS' INITIATIVE
LED BY
GREEN ELLSWORTH

www.greenellsworth.org
greenellsworth@gmail.com

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This plan is based on input from hundreds of Ellsworth citizens, business owners, nonprofits, city staff, and area residents of all ages, and we thank them for their generosity in providing insights, aspirations, data, and other information. The plan has been assembled by Green Ellsworth, a group that began under the name "Green Plan Steering Committee" and that has since transitioned to an organization to support the longer-term implementation of the plan. We thank the following partner organizations for their contributions to our planning effort:

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City of Ellsworth
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Ellsworth Garden Club
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Betsy Armstrong
Jay Barnes
Kristina Beal
Mary-Michael Billings
Mary Blackstone
Judy Blood
Gale Caddoo
Brett Ciccotelli
Sally Cook
Don Cooper
Terri Cormier
Julie Daigle
Ed Damm
Daryl DeJoy
Dan DeLong
Martha Dickinson
Linda Doty
Aaron Dority
Ericka Duym
David Edsall
Rachel Emus
Megan Facciolo
Allen Fernald
Elaine Fernald
Anita Findlen
Jef Fitzgerald
Bill Fogle
Gary Fortier
Ruth Foster
Catherine Fox
Katie Freedman
Jane Freeman
Steve Fuller
Michele Gagnon
Rand Griffin
Nicole Grohoski
Eileen Hall
Nate Hanson
Leslie Harlow
Carla Haskell
Philip Heasley
Don Herrington
Alice Higgins
Mark Honey
Janice Janes
Isabella Kjaer
Anne Krieg
David Lamon
Jane Langley
Christa Little-Siebold
Cameron Louis
Rick Lyles
Peter Mainguy
Reeser Manley
Paul Markosian
Lucia Michielli
Gerry Monteux
Nancy Morris
Nick Navarre
Theresa Oleksiw
Sheila O'Neill
Renee Page

Bob Pepler
Marjorie Peronto
Christopher Phinney
Thomas Rainer
Rosamond Rea
Grayson Richmond
Cara Romano
Tricia Rouleau
Nick Sarro
Austin Schuver
Gary Shellehamer
Robin Snyder-Drummond
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CITIZEN SUMMARY

Ellsworth is rich in natural and built assets. As one of Maine's fastest-growing cities in recent decades, however, it faces significant challenges as population growth and development put pressure on these assets, and as citizens demand a better balance between growth and quality of life. At the same time, as elsewhere around the globe, the city's natural and human systems are increasingly threatened by climate change and rising seas levels.

This plan evolved out of the vision and aspirations of a broad group of participants concerned about our community's long-term sustainability. They want Ellsworth to become a model green community—a sustainable community that manages its resources and abundant assets so that those enjoyed by previous generations will continue to be enjoyed by current and future generations.

The Green Planning Process: A Citizen Initiative

Ellsworth's green planning began in January 2017 with a public forum organized by the Ellsworth Garden Club and the city's Planning Department. Over the next three years, more than 2,000 people engaged in the planning process. Citizens, business owners, nonprofits, city staff, and area residents of all ages provided input at 18 public forums and in numerous written and electronic submissions, surveys, interviews, workshops, and other meetings. Although the voices of people who live and work in Ellsworth dominated the process, other stakeholders who do business or use services in this county seat and business hub also contributed. From the beginning it was noted that Ellsworth has a leadership role to play in its greening efforts in Hancock County and beyond, and input from those wider perspectives was welcomed.

Green Ellsworth, the group that oversaw the planning process and then assembled the Green Plan, also involved a microcosm of the community. Nearly 100 people—with diverse backgrounds and representing 8 organizations and working in 12 subcommittees—undertook public consultations, research, writing, fundraising, and small projects aligned with Green Plan objectives. These citizens not only provided considerable expertise, but in many cases did so gratis. Having begun its work under the

name of the Green Plan Steering Committee, Green Ellsworth has since transitioned to an organization supporting the Green plan's implementation.

Six principles, distilled from citizen input, guided the planning process and will also guide implementation of the Green Plan:

1. *Global environmental issues need to inform all public and private decision making and action at the local level.*
2. *Human beings exist in and rely on a complex ecosystem.*
3. *A model green community is a sustainable community.*
4. *The natural resources of the community should be accessible to all.*
5. *A green community lays the groundwork for a smart, forward-thinking economy.*
6. *Ongoing planning should regularly engage citizens in meaningful and timely consultation.*

A major concern throughout the planning process was looking for ways in which pursuing sustainability objectives can also create economic opportunities—for example, for reducing costs to the city and to taxpayers, securing external funds, providing employment for citizens, and reducing the deferred debt and tax burden for future generations.

When Ellsworth's green planning began in 2017, no one anticipated a pandemic and the profound disruptions it would cause. In exposing our vulnerabilities across so many arenas, COVID-19 has dramatically highlighted the urgency and timeliness of green planning and the need to prioritize sustainability objectives.

The Green Plan: A Community Vision

This Green Plan is not a formal city government document, but rather a compilation of community voices—the voices of people eager to discuss the type of community they want to live in, what its future should look like, and how that should relate to the future of our planet.

These citizens provided input on a wide range of topics, most of which is distilled into Chapters 1 through 4: Water; Land; Food and Farming; and Infrastructure, respectively. The focus of these core chapters is twofold: (1) they identify ways in which our city government can bring its current practices, regulations, and structures more in line with the desires of its citizens for an increasingly sustainable community; and (2) they outline the essential roles of nonprofits, business owners, local residents, and citizen volunteers as partners in meeting these goals. Each chapter includes between 35 and 50-plus recommended actions. Chapter 5, Integrating Actions, proposes ways to simultaneously address overlapping and interrelated issues and offers 10 additional recommended actions.

In addition to laying out the principles and objectives that green planning participants want the city to embrace, the plan establishes a baseline of where Ellsworth is now relative to the community's aspirations. It lays out basic guidelines, time lines, and a phased action strategy, and it identifies the key players, necessary resources, and funding sources needed to implement the recommended actions. Two appendices and a wealth of online materials support the plan and will facilitate its implementation.

The overall goal of the plan is to create and maintain a thriving community ecosystem that conserves for future generations the natural and historic characteristics of Ellsworth that its citizens collectively cherish. It is also intended to inform the upcoming revision of the city's 2004 Comprehensive Plan and to motivate and empower everyone in the community to assume responsibilities for effecting changes in thinking and behavior.

Many of the concerns and recommendations outlined in the Green Plan parallel those recently articulated by the Maine Climate Council. If state lawmakers follow up with the legislation and actions the council has proposed, the timing of this Green Plan could not be better. Access to substantial state programs and funding should make it possible for Ellsworth to achieve many of its green planning objectives for greater sustainability and resilience in response to anticipated challenges (e.g., climate change) and unanticipated challenges (e.g., pandemics).

Implementing the Plan

The release of this Green Plan marks a milestone for the City of Ellsworth. Now the real work begins, as the focus shifts from sustainability planning to implementation. Success in meeting the plan's long-range goals will depend on building the financial and human capacity to sustain the plan's ambitious action agenda over the next ten years and beyond. It will also depend on a whole community approach—on the range of individuals, businesses, and organizations that embrace and adopt the plan, and on everyone at all levels asking basic sustainability questions to regularly inform decision making, actions, and projects.

Many of the plan's recommendations will require follow-through by city government and elected officials, whereas others will require follow-through by nonprofit partners and individual volunteers. All of these players—city government, nonprofit staff, and citizens—will need to respect and draw on each other's strengths and qualifications while working together cooperatively.

Two features of the plan in particular are aimed at ensuring its successful implementation:

1. Goals and objectives are tied to specific recommendations and strategies. Citizens cautioned against a generalized plan full of goals but without a grounding in specific actions and strategies for how to achieve them. Responsible parties, necessary resources (including funding) and where they will come from, and realistic time lines are identified for all of the plan's 183 recommendations (see Appendix 2).

2. The plan has an ongoing organization charged with catalyzing, coordinating, and advocating for its implementation. Unlike one-off studies contracted from outside firms or completed by committees that are then disbanded, the Green Plan is not a stand-alone effort. Green Ellsworth has four action teams—one for each of the four core chapters in the plan—charged with overseeing implementation of the recommendations, and a coordinating body, with representatives of major partner organizations, the four action teams, and supporting committees. Green Ellsworth will play a key role in engaging and supporting both public and private greening efforts.

Time Lines

This plan details a ten-year time frame, 2021–2031. We recognize that realizing the many aspirations the plan articulates will take longer than this, and see this as an ongoing effort to engage citizens, businesses, nonprofits, and city officials in collaborative leadership and action that can be reviewed and renewed with updated recommendations and time lines at the end of the ten-year period.

Given that context, the Green Plan is structured around broad objectives with specific recommendations for both smaller and larger, phased projects. The important thing from the community's perspective is that we start taking small steps toward larger goals. Several large-scale projects proposed in the plan are already underway (see sidebar), and others will be initiated later in the ten-year period and carry on beyond it.

Some Green Plan Projects That Are Already Underway

- Branch Lake watershed survey and management plan
- Waterfront revitalization
- Conservation of critical habitat and historic properties
- Urban forestry program to restore the city's tree canopy
- Permanent home for a year-round farmers' market
- Link between the Rail Trail and Downeast Sunrise Trail extension
- Municipal and community solar projects
- Reduction of plastic waste via a producer-pay system

Green Ellsworth will undertake a five-year assessment of progress in implementing the Green Plan's recommendations. This assessment will involve reviewing the effectiveness of key strategies, reevaluating priorities, and incorporating into the action plan any new areas of focus that require attention.

A Road Map to a More Sustainable Future

It has been said that good planning makes good communities. Having grown out of a robust community commitment to making change, the Green Plan has the potential to bring social, environmental, and economic value to our community that far exceeds any costs. No one expects Ellsworth to become a model green community overnight, however. Ten years from now, there will still be work to do in realizing our citizens' vision.

That said, we do expect that in 2031 Ellsworth will be a greener, more sustainable city—one that will look different and will function differently. It will be:

- Protecting a working riverfront that is also more accessible and more attractive
- Doing a better job of preserving its farmlands and forests, large natural land area, and comparatively clean waters
- Doing a better job of monitoring its ground and surface water and of managing stormwater
- Placing a higher priority on quality maintenance of its trees, parks, and cemeteries
- Offering more features of a walkable and bikeable community
- Experiencing less traffic congestion and more public-transit options
- Reducing the amount of waste and recyclables it processes
- Deriving fewer of its energy needs from fossil fuels
- Cultivating more viable local farms and food sources for all residents
- Benefitting from a year-round farmers' market and a municipal solar farm
- Enjoying enhanced economic prosperity thanks to green businesses
- Sustaining the qualities of rural living while enjoying a vibrant city center
- Striking a better balance between quality of life and commercial development

Most important, the city's response to sustainability issues will no longer be piecemeal, sporadic, or reactive but coordinated, sustained, and proactive.

Green Ellsworth welcomes all who have an interest in contributing to positive change in our community to join in realizing the aspirations of the Green Plan. Everyone has a role to play in making Ellsworth a model green community.

INTRODUCTION

I. Overall Goal and Objectives

The City of Ellsworth has many natural and built assets. As one of Maine's fastest-growing cities over the past two decades, however, Ellsworth is facing serious challenges as population growth and development put pressure on these assets, and citizens demand a better balance between growth and quality of life. This plan evolved out of the vision and aspirations of a broad group of participants concerned about our community's long-term sustainability. They want Ellsworth to become a model green community—a sustainable community that manages its natural and built assets in such a way that those enjoyed by previous generations will continue to benefit both current and future citizens. They want access to the amenities of healthy natural ecosystems and of sustainable built infrastructure for themselves and their grandchildren:

- Clean water for drinking and recreation
- Green spaces, parks, and trees for the protection of water, wildlife, habitat, and livable neighborhoods
- Farms and a vibrant local food system for all
- Infrastructure that facilitates ease of mobility
- Affordable alternative energy sources
- Responsible waste and stormwater management

This Green Plan is not a formal city government document, but rather a citizens' initiative. Its goal is to create and maintain a functional, livable, and thriving community ecosystem that conserves for future generations the natural and historic characteristics of Ellsworth that we collectively cherish. The plan establishes a baseline as to where we are now relative to the community's aspirations and lays out basic guidelines, time lines, and a phased action strategy to realize our citizens' vision. We recognize that realizing this vision will take longer than the ten-year time frame detailed here, and see this as an ongoing effort to engage citizens, businesses, nonprofits, and city officials in

collaborative leadership and action that can be reviewed and renewed with updated recommendations and time lines at the end of the ten-year period. This plan is intended to inform future revisions of the city's 2004 Comprehensive Plan and to motivate and empower everyone in the community to shoulder responsibilities for changes in thinking and behavior. The Green Ellsworth website provides further material to support our conclusions and the implementation of this plan.[1]

II. Why a Plan and Why Now?

The virtue of a long-term strategic plan is that it provides a road map and action plan for achieving something that might otherwise seem unachievable—or even inconceivable. Apart from including specific short- and long-term strategies, a good plan also provides a framework of principles that can inform responses to unanticipated issues, situations, or opportunities and guide the implementation of strategies to realize evolving green objectives. Although sustainable public health measures and emergency management lie beyond the scope of this plan, recent developments within the context of the coronavirus pandemic demonstrate dramatically the importance of having a strategic plan and a framework for responding quickly and flexibly to unanticipated developments.

When our green planning began in 2017, we certainly did not anticipate a pandemic, but COVID-19 has stimulated insights that highlight the urgency and timeliness of our planning. In the context of social distancing and isolation, with livelihoods, lives, and the fabric of entire communities under threat, many people looked to the resilience of spring, of nature, and of backyard gardens for grounding and a connection with enduring natural systems. As human systems reached the breaking point, people found a buffer or refuge in the kind of green spaces with which Ellsworth is blessed. At the same time, people around the globe celebrated the 50th anniversary of Earth Day, and together both events reminded us that our survival as a species, life as we know it and the resiliency of our communities, depends on the health of our natural ecosystems.

[1] See www.greenellsworth.org. Our Online Support Materials include links, maps, photographs, survey and inventory data, and additional documents, including a brief overview of the city's natural topography and environmental history.

Living ecosystems are dynamic; they persist because they do evolve and change. They are not necessarily benign, however. Our species has contributed significantly to changes in our environment, but the evolution of ecosystems does not necessarily guarantee the persistence of species that cause them to change. We need the planet, but the planet does not need us to persist. COVID-19 is just one of many natural phenomena highlighting our vulnerability as a species and our need to better adapt human behavior to the realities of the ecosystems in which we live.[2] The disproportionate effect of the virus on people of color and the strength of the Black Lives Matter movement have made it clear that any sustainability solutions need to be accessible to all, not just some. Emerging out of the tall shadow cast by a tiny microorganism, this Green Plan responds to the impulse for change set in motion in 1970 on the first Earth Day. It calls for strategic, local actions grounded in social justice and an understanding that the sustainability of humanity, and Ellsworth as a community, depends on our forging a sustainable relationship among ourselves and with our natural world.

Many of the concerns and strategies outlined here parallel those currently being articulated by the Maine Climate Council, and if state lawmakers follow up with the legislation and actions the council has proposed, the timing of this Green Plan could not be better. It should enable the community to access substantial programs and funding that will enable Ellsworth in the wake of COVID-19 to build an even stronger future by embracing its citizens' aspirations for the city's transformation to a model green community.

III. Principles for Sustainable Development

We heard repeatedly in our consultation process that it was not clear to citizens what principles governed decision-making processes in the community. Some citizens thought decisions were made on the basis of what would maximize revenue for businesses or city government. Others thought the driving principle was increasing the numbers of

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[2] Amanda Schupak, "Why the Solutions to Coronavirus and Climate Change Are the Same," *Huffington Post*, Apr. 14, 2020; www.huffingtonpost.ca/entry/why-solutions-coronavirus-climate-change-same_n_5e908f19c5b6260471e0d840?ri18n=true&ncid=engmodushpmg00000006; Arthur Wyns, "How Our Responses to Climate Change and the Coronavirus Are Linked," *World Economic Forum*, Apr. 2, 2020; www.weforum.org/agenda/2020/04/climate-change-coronavirus-linked/.

businesses or residents, and they expressed concern that no one was asking why and whether such goals were desirable. Many wanted a stronger focus on improving the quality of life and attractiveness of the city for current and potential residents in the context of all decision making, especially within city government. Over and above any input specific to green issues, the strong participation in our public forums demonstrated a broad citizen interest in more public debate and input regarding basic principles governing planning and decision making. For clarity, we have distilled from their input six principles that have guided our planning process. Going forward they will guide implementation, and we hope they will come to guide decision making and planning from the level of city government to that of individual households and businesses.

1. Addressing global environmental issues needs to inform all public and private decision making and action at the local level.

Green initiatives are a global phenomenon and the focus of international negotiations, organizations, and movements. They play out at the level of state legislatures, large corporations, and small businesses. We need to acknowledge and contribute to green initiatives at all levels, and we especially need to recognize that acting locally in our homes, neighborhoods, schools, and businesses, as well as within city government, has a critical impact—and that without that local engagement, broader-level greening initiatives will have limited impact.

2. Human beings exist in and rely on a complex ecosystem.

The health of our natural ecosystems determines the long-term health of our community. With Ellsworth being one of New England's largest communities in terms of land and water area, as well as a county and regional hub and gateway to one of the country's most popular national parks, its residents, businesses, and government have a responsibility to make *all* decisions with the objective of maintaining and maximizing the health of the full biodiversity of our ecosystems.

3. A model green community is a sustainable community.

From our initial public forum throughout the consultation and planning process, a common expectation dominated: in order for Ellsworth to become a model green

community, it must act sustainably. It must ensure socially, economically, and environmentally resilient living conditions for current inhabitants without compromising the ability of future generations to enjoy the same. This includes access to the distinctive landmarks and natural assets that figured in the city's evolving character as a community and must continue to contribute to the city's sustainable future. It also involves doing our part to reduce, mitigate, and adapt to the impacts of climate change as manifested locally and globally.

4. The natural resources of the community should be accessible to all.

Longtime residents noted how public access to our land and water has diminished due to widespread development, and they expressed concern that additional areas currently accessible to the public will be lost to public access. This relates to both publicly owned properties and privately owned properties that have historically been made available without posting, fencing, or other obstructions to access. It also relates to neighborhood access, in that newly available conserved land or water access in one neighborhood does not compensate for the loss or lack of publicly available land or water access in another neighborhood. Shrinking accessibility affects health and mobility. Disappearing trails and old woods roads have historically provided recreational opportunities and healthy exercise. Green corridors facilitate movement of people and animals from one neighborhood to another, without the use of motorized vehicles and competition with busy roadways. People of all physical and financial abilities also need access to open areas for community gardens or other options for growing food locally. Just as the health and sustainability of ecosystems depend on their diversity and the extent to which they support the needs of their interdependent components, so too the health and sustainability of our community depend on the extent to which it supports the needs of all of its citizens. A sustainable community is what author and economist John Ikerd has described as a "true community," one in which "people care about each other and are committed to each other's well-being."[3]

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[3] Paper presented at the 22nd Annual Conference of American Community Gardening Association, Salt Lake City, UT. Sept. 8, 2001; http://web.missouri.edu/~ikerdj/papers/SaltLake.html.

5. A green community lays the groundwork for a smart, forwarding-thinking economy.

Citizens expressed impatience with what they perceived as Ellsworth's historical focus on attracting business to the community under the assumption that increased business, visitors, and residents will ultimately pay for amenities to improve the quality of life. They called for a reversal of priorities, with a primary focus on creating a quality of life that will attract new residents and businesses. They called for emphasizing the community's natural historical—but neglected—assets: the Union River watershed and the region's farmland and forests, large natural land area, and comparatively clean waters. This would strengthen our capacity to attract green businesses. Recreational businesses, fishing, forestry, and farming—as well as businesses concerned with alternative energy production, green building and landscaping practices, and smarter waste management—offer forward-thinking opportunities for attracting investment. They would be smart complements to the community's green aspirations as well as to the efforts of existing organizations and businesses (e.g., Jackson Lab, Subaru, Renys) that have embraced and promoted green initiatives.

6. Ongoing planning should regularly engage citizens in meaningful and timely consultation.

In our public forums, citizens expressed concern that the type of consultation facilitated by Green Ellsworth has not been a regular practice of city government and that venues such as City Council and Planning Board meetings only afford an opportunity to provide input on specific projects after the point where input can have any meaningful impact. Although this Green Plan provides input on how green objectives should figure into the city's overall planning and budgetary, maintenance, and development priorities, people wanted more regular and meaningful opportunities for input that could affect decision making and day-to-day practices. The quality of written and verbal input received by Green Ellsworth suggests that such consultation would greatly improve communication between the public and the city while also strengthening the city's planning through access to considerable volunteer expertise and insight.

IV. Our Approach to Planning

Our green planning began in January 2017 with a public forum organized by the Ellsworth Garden Club and the city's Planning Department. That forum established the mandate and vision behind this document, and also four key expectations informing our approach to planning and implementation.

1. Broad consultation. This plan draws on input from 18 public forums as well as numerous written and electronic submissions, surveys, interviews, workshops and other meetings with city staff, teachers and students, and numerous service and nonprofit organizations. The voices of people of all ages who live and work in Ellsworth have dominated our planning process, but other stakeholders who do business or use services in this shire town and business hub of Hancock County contributed as well. From the beginning it was noted that Ellsworth has a leadership role to play in its greening efforts in the county and beyond, and that input from those perspectives should be welcomed.

2. Broad engagement in planning and implementation. More than one forum participant expressed anxiety that this effort could produce just another dusty document. To avoid that, we have strategically involved people and partner organizations in the planning process in such a way as to engage, empower, and educate them to move seamlessly from planning to implementation. Unlike an external consulting firm, these citizen planners and their recommendations come with an ongoing commitment to implementation. In addition to city staff and a City Council member, our planning team has involved a microcosm of the community—representatives from 8 other organizations and nearly 100 people across 12 subcommittees. Participants in our educational events, parallel projects, and consultations have included children and families, high school and college students, business and professional people, politicians and retirees, and longtime and new community residents alike. We estimate conservatively that we have engaged more than 2,000 people in this planning process. Although the plan identifies key players, such as the city, as responsible for implementing various recommendations, the success of this plan will ultimately rest on the range of individuals, businesses, and organizations that embrace and adopt it. Green Ellsworth will be charged with expanding community engagement further over the next ten years (see the Conclusion and www.greenellsworth.org for more information about this organization).

3. Goals and objectives tied to specific recommendations and strategies. Citizens cautioned against a generalized plan full of goals without a grounding in specific actions, responsible parties to undertake those actions, identification of necessary resources and where they would come from, and realistic time lines (see Appendix 2). No one expected Ellsworth to become a model green community overnight, especially given the large aspirations articulated repeatedly throughout our planning process. Participants expressed frustration that the community had not set larger, more challenging goals for itself, and urged us to set such objectives—but they also wanted a steady, strategic, and actionable road map for both practical and creative ways of getting there over time. This plan is structured around broad objectives with specific recommendations for both smaller and larger, phased projects that may be ongoing beyond the ten-year life span of this plan. The important thing from the community's perspective is that we start taking small steps toward larger goals.

4. Measured resources, measurable results. Occasionally in our planning consultations, the public was uncertain as to where the city currently registers on the green spectrum in a specific area of concern. Citizens wanted our planning to be grounded in a clear understanding of current conditions as well as aspirational goals, in part to establish a baseline from which to measure progress. In some areas, the required scope of work or expertise to establish such baseline data has meant that we have recommended studies and the collection of data to determine a baseline as our first priority for action. In most cases, though, our subcommittees undertook substantial research to establish current conditions and baselines, including a call for written submissions, public surveys, inventories, interviews, a build-out analysis, worksheets from public forums, landscape surveys in GIS format, and other GIS-based analysis. The subcommittees also benefitted from existing or specifically developed data, maps, and other research findings provided by College of the Atlantic, the City of Ellsworth, the Hancock County Planning Commission, Frenchman Bay Conservancy, Downeast Salmon Federation, Maine

Farmland Trust, and other publicly available sources. Much of the material gathered by the subcommittees is included in this plan's Online Support Materials.[4]

Beyond simply determining current conditions, the subcommittees also began changing current conditions through educational outreach and numerous small projects undertaken simultaneously with the planning process (see www.greenellsworth.org for details). These small projects affected our baselines, and the experience gained in generating community engagement, developing partnerships, and raising funds (over $200,000 during the planning phase) also informed our recommendations as well as the proposed mechanisms for implementing them.

V. Areas of Focus

We received community input on a wide range of topics, most of which we distilled into four topical chapters: Water, Land, Food and Farming, and Infrastructure. We received input on other matters affecting sustainability (e.g., the economy and innovation, buildings and housing, public health, emergency preparedness, poverty and social justice) but determined that doing full justice to these matters would require separate studies for each one—and most likely a regional rather than a community focus. To some degree, much of the specific input we received on these matters is addressed at some level in this plan as it relates to one or more of our chapter topics. This is indicative of how frequently sustainability issues and solutions overlap and extend across jurisdictional boundaries. In an effort to facilitate those interconnections, a fifth chapter addresses the importance of an integrated systems strategy for implementation and highlights crosscutting recommendations for action and change. The fact that all of these chapters parallel similar concerns and strategies being explored by the Maine Climate Council further highlights their significance and the potential for doing something about them in the context of a statewide initiative.

Chapter 1: Water. A fundamental concern for our city needs to be protecting the quality of our drinking water and the Union River watershed as environmental habitat,

[4] All Online Support Materials referenced in this plan can be found under the Green Plan and relevant action team or focus area pages at www.greenellsworth.org.

recreational asset, and source of income. We seek to engage Ellsworth citizens in promoting healthy groundwater resources, lakes, and waterways and in returning the Union River to a force that drives the local economy and culture. In the context of sea level rise, eroding riverbanks, and the silting of river channels, we focus on one of our citizens' most commonly cited aspirations: renewal of our downtown waterfront and improved access to the river. We also consider the importance of renewing the city's stormwater system and incorporating green infrastructure into that system.

Chapter 2: Land. This chapter focuses on protecting, strengthening, and promoting the role of Ellsworth's green and recreational spaces. We envision an interconnected and diverse network of both private and publicly accessible properties linked by street-tree canopy and landscaping as well as a system of walkable green corridors. Recognizing Ellsworth's exceptionally large footprint by area and its origins and historic character grounded in its rural forests and urban tree-lined streets, we call for better management of our rural and urban green spaces as essential to the community's current and future quality of life, a healthy local economy, and a resilient and biodiverse environment. While recommending that a greater proportion of Ellsworth's land base be set aside for conservation, we also recommend significant changes in the city's approach to land-use zoning and ordinances. We need to ensure more sustainable development and set standards that preserve and enhance the character of a community that citizens and their children will be proud to call home.

Chapter 3: Food and Farming. In a sustainable green community, no one goes hungry. Such a community fosters a network of farmers, homesteaders, backyard gardeners, and school and community gardens capable of growing as much local food as possible. The COVID-19 pandemic has highlighted our vulnerability if we lack a marketing and distribution system that effectively moves food from the farm to the table (e.g., farmers markets, community supported agriculture, online hubs for wholesale and retail sales, restaurants, grocery stores and food processors, gleaners, community meals, and food pantries) so that everyone has access to healthy local foods and farming as a business thrives. We propose ways in which changes in zoning, taxation, and economic

development priorities can help the city and the region preserve and reclaim land that was historically devoted to agriculture.

Chapter 4: Infrastructure. In the public's vision of a sustainable community, various aspects of the city's infrastructure figured prominently. Some infrastructure issues, such as the public water supply, stormwater, and housing, are addressed in other chapters. This chapter focuses on three interrelated areas of particular significance in addressing climate change and the integrity of our global ecosystems: transportation, energy, and solid waste management. It addresses several solutions to the city's traffic congestion as proposed by citizens, as well as related issues such as improved public transportation, walkability, bikeability, and accessibility. Another section seeks to reduce our dependence on fossil fuels by fostering the introduction of alternative energy sources such as a municipal solar farm. The final section addresses waste management at multiple stages in the supply chain, with the goal of reducing waste and its impact on our environment.

Chapter 5: Integrating Actions. Although dealt with in four separate chapters, the natural and human systems on which we focus, and many of the recommendations across the chapters, overlap. To effectively achieve our sustainability goals, we make several overarching recommendations to facilitate and support the work proposed across the chapters. We also propose an integrated systems approach to implementation. While addressing recommendations in one area, we look for ways to simultaneously address recommendations in other, interconnected areas. For instance, conserving green spaces can also help improve water and air quality, manage stormwater, create walkable corridors, and foster a viable farming sector.

VI. A Sustainable Community—Something beyond Ourselves

Just as an integrated ecosystem has a far greater impact than any one of its species, so too a sustainable community can have a far greater impact than any one of its individual members. In the context of this plan, John Ikerd's observation about the nature of communities is especially relevant: they involve "those things that do not exist within individuals, but between and among individuals: the connections, the relationships, and

the sense of being a part of something beyond ourselves."[5] This characterizes the collective experience of people who came together through the green planning process to imagine and forge a more sustainable community for all current and future citizens. In that context, our sense of "being a part of something beyond ourselves" extends to being part of the natural ecosystems on which Ellsworth depends and a global community striving to reconcile human and natural systems for a more sustainable planet. Green Ellsworth will build on this robust sense of community as it takes up the action plan laid out in the following chapters in order to move us closer to our shared vision of a greener city.

Whatever your role in or connection with the City of Ellsworth, we invite you to engage in the action plan laid out here and join us in fostering a sustainable community with a future greener and more prosperous than any of us could achieve individually.

[5] Paper presented at the 22nd Annual Conference of American Community Gardening Association, Salt Lake City, UT. Sept. 8, 2001; http://web.missouri.edu/~ikerdj/papers/SaltLake.html.

CHAPTER 1

WATER

I. Our Goal and Vision for This Resource

As a requirement for human survival, water is one of the essential resources provided by our ecosystems. It is also an increasingly precious, volatile, and threatened commodity. Fortunately, Ellsworth is rich in water resources. The city encompasses a large portion of the Union River's 500-square-mile watershed, nine freshwater lakes and ponds, tidal shore frontage leading to Union River Bay and Mt. Desert Island, numerous streams and wetlands, and abundant clean groundwater reserves. As one of the most popular attractions for both visitors and residents, the water and access to it are key factors in assessing the quality of life that Ellsworth offers. As a catalyst for revenue, whether at Harbor Park or private businesses, through the glass eel fishery, or in the form of property taxes, water has a vital role to play in our economy now as in the past. Compromised lakes, waterways, and groundwater in other parts of the state—and in Ellsworth itself—signal the need for *proactive vigilance and an integrated water management program, with the goal of balancing the need to preserve and protect our water resources for future generations while also providing for their ongoing use and improved public access.*

Since at least the 1960s, the citizens of Ellsworth have sought to reinvigorate our community by returning the city's attention to its historic heart—the Union River waterfront. A Bicentennial project in 1963 carved out a River Walk behind the Ellsworth Public Library, and in 1969 the Chamber of Commerce began developing what has become Harbor Park and Marina. More recently, in a 2001 visioning process, the 2002 Waterfront Master Plan, the 2004 Comprehensive Plan,[6] and the 2015 Visioning Project, citizens have prioritized protection of water quality, increased access to the water, and further renewal of the riverfront. In the 2015 Visioning Project, the current state of Ellsworth's riverfront surfaced as one of the "worst things" about the city. Most recently,

[6] Ellsworth Comprehensive Plan Update, Nov. 2004, www.ellsworthmaine.gov/wp-content/uploads/2016/10/Comprehensive-plan.pdf. See especially sections IG3-4 and II3G1-2.

in the context of green planning (surveys, forums, written submissions), demands for water-related interventions appear to have become even stronger and more urgent, with waterfront revitalization frequently cited as a strong motivating factor for green planning engagement.

Our shared community vision is for an Ellsworth that values and has access to thriving aquatic ecosystems and abundant clean water in its river, streams, lakes, and aquifers, all of which are enhancing our region's present and will strengthen our future.

II. Why Water Matters to Ellsworth's Sustainability

In our public consultations and surveys, citizens stated multiple reasons why good management of our water resources is essential to Ellsworth's long-term sustainability. As drinking water; as an essential habitat for an important food source and a recreational fishery and activities; as an economic driver attracting residents, visitors, and businesses; and with a river inextricably tied to our origins, sense of place, and identify as a community, abundant, clean water is at once critical to our future and threatened by human and environmental impacts due to climate change.

A. Our Drinking and Public Water Supply

Early settlers, like the indigenous people before them, would have been attracted to Ellsworth's abundant water resources. They could draw drinking water from the river and from springs on both sides of it. As early as 1884, however, the city realized it needed a more comprehensive public water supply that could provide "pure water for domestic and industrial uses, as well as for the purpose of subduing fire."[7] It launched a search for the source of "the purest natural waters" and concluded they were to be found "in the thousands of crystal lakes that glimmer among the wooded hills of Maine, water of remarkable purity." With water quality "the most important essential," the city considered five water bodies and chose Branch Lake, which remains Ellsworth's water source today. Subsequently, the city purchased another one of those water bodies, Simmons Pond, as a backup water supply. While the city's public water supply continues

[7] I. A. Hancox, C.E., *On the Supplying of the City of Ellsworth, Maine with Pure Water*…. 1884. This report was prepared by the Massachusetts firm hired by the city to determine a suitable water supply.

to be essential for many homes and businesses, some citizens just outside the core area of the city, as well as rural citizens outside the reach of the public water system, still rely on the quality of our groundwater, and consequently the health of our aquifers. As Ellsworth continues to grow, so too will the challenge of preserving our access to "water of remarkable purity."

B. Our Food Supply

Indigenous people were attracted to an abundant supply of shellfish and other native fish in the Union River watershed.[8] Before dams compromised the access of spawning sea-run fish to upper levels of the watershed, early settlers also benefitted from abundant runs of salmon, shad, eels, sturgeon, and river herring (alewife and blueback herring). Because these fish migrate to and from the ocean, they are also a critical component of marine ecosystems—in particular as food for seabirds and ocean fish such as cod and halibut. These larger fish were at one time the backbone of our fishing industry, one that fed us and Europe for several hundred years. The health and diversity of freshwater ecosystems are thus closely tied to the food web in the Gulf of Maine. With so many of Maine's rivers and lakes compromised by dams since the 1800s, the populations of smaller fish became inadequate to support the larger fish and contributed to the decline of the marine fishery.[9] The west branch of the Union River has more naturally alkaline bedrock than many other Downeast rivers, and this has helped buffer the impacts of acid rain on the river. Consequently, the introduction of fishways on Union River dams, or dam removal to better facilitate the passage of sea-run species, would present an exceptional opportunity to help turn around the decline in fish stocks and rebuild both our freshwater and marine ecosystems. This in turn could help restore the ocean fishery, related employment, and our capacity to feed ourselves.

C. Natural Habitat and Recreational Services

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[8] Several names for the Union River in indigenous languages suggests that multiple First Nations depended on the watershed; Fannie Hardy Eckstorm, *Indian Place-Names of the Penobscot Valley and the Maine Coast*, University of Maine Studies (Orono: Univ. of Maine Press, 1941), p. 209.

[9] Linda Welch and M Langlois, "Using Seabirds to Track Ecosystem Change in the Gulf of Maine," Acadia National Park Science Symposium at Schoodic Environmental Research Centre, 2016; Adrian Jordan, Carolyn Hall, and Michael Frisk, "Is the Recovery of Cod (*Gadus morhua*) Limited by River Herring Populations?" Marine Sciences Research Center (Stony Brook, NY: Stony Brook University, 2008).

Beyond being a source of food, the Union River watershed historically created an attraction for early rusticators and recreational fishing, boating, and hunting enthusiasts. Today, busy public boat launches and swimming beaches on Ellsworth's major lakes are testimony to the continued and expanded public interest in recreational engagement on our lakes and waterways—as well as to the economic significance of related tourism and recreational businesses. Summer and year-round waterfront residents currently contribute 34% of Ellsworth's total tax revenue.[10] Despite the limited services available to many waterfront properties, the high property values associated with waterfront real estate relative to properties elsewhere in Ellsworth reflect the recreational attraction and perceived desirability of living near the water—and the need to preserve public access to the water so that all citizens and visitors can enjoy these resources.

D. Economic Driver and Working Waterfront

Apart from providing vistas and recreational assets, the Union River has been a working river providing other important services that have driven the local economy. It has provided a means for transportation, power generation, and access to a lucrative maritime economy. Water brought logs downstream, provided the power for sawing them into lumber, and created the base for one of the most important shipbuilding sites on the Eastern Seaboard. Although fish stocks in the watershed are just a vestige of their earlier abundance and diversity, today's commercial alewife fishery continues to generate income, and the elver (baby eel) fishery is very lucrative. In both 2018 and 2019, Maine's total elver income was more than $20 million, and the Union River netted one of the largest returns out of a limited number of sites.[11] A Center for Innovation sits where ships were previously built, and the Ellsworth dam supplies limited power to the New England power grid. The increasing popularity of Harbor Park and Marina as a mooring site and its capacity to function on a cost recovery basis reflect the river's more recent

[10] Information provided by the City Assessor's Office, 2020. The percentage of city revenue from waterfront property appears to be increasing swiftly. In 2016 such property constituted just 3% of the taxed property and 23% of Ellsworth's property tax revenue. That amounts to a 48% increase in 3 years; Steve Fuller, "Waterfront Properties Account for Quarter of City Tax Base," *Ellsworth American*, Feb. 3, 2016, www.ellsworthamerican.com/maine-news/waterfront-properties-account-for-quarter-of-city-tax-base/.

[11] Bill Trotter, "Maine 2019 Baby Eel Harvest Value Exceeds $20M for Second Straight Year," *Bangor Daily News*, June 1, 2019, https://wgme.com/news/local/maine-2019-baby-eel-harvest-value-exceeds-20m-for-second-straight-year.

transformation to recreational use and the economic potential of a different type of "working river"—a sleeping giant just waiting to be revived and realize its potential. Citizens have repeatedly argued that recovery of the river's shoreline and aquatic ecosystems and improved public access to the river have the potential to drive economic and cultural renewal for the city's downtown core.

E. Our Identity and Sense of Place

Just as access to potable water, a system of lakes and waterways, and thriving aquatic ecosystems were central to why and how our city's historical identity evolved, so too water resources remain a determining factor today in defining who we are as a community and our citizens' sense of place. Current residents, both new and established, cite access to the water as the number one attraction for living here. The history of the Union River watershed informs our sense of where we have come from and what we want to become as a city. Looking out over the glittering water in Union River Bay or the numerous lakes that surround the city, Ellsworth citizens today are not at all different from our founding settlers in their hope of passing on the beautiful resources of this place as a legacy to their children and future generations. The care and preservation of that legacy need to inform our long-term planning as well as our ongoing sense of place and community identity.

F. Old and New Threats

Ellsworth's water resources may be crucial to its culture and identity, quality of life, and economy, as well as its citizens' aspirations, but historical and current dynamics between human settlement and the natural environment suggest that the sustainability of this relationship requires vigilance.

Unfortunately, one of the services historically performed by the river and its tributaries was waste disposal. Early sewer systems discharged directly into the river, and other types of wastes were buried along its shores. Waste was also thrown into the tidal areas of the river or its tributaries, to sink to the bottom or be carried out to sea and out of sight. As recalled by one longtime resident, "My only childhood memory of the river is that's where we threw our garbage." While Ellsworth today maintains a modern waste

treatment plant, the pipes that once carried raw sewage still carry untreated stormwater into the river, and the practice of using the river and its tributaries either intentionally or unintentionally to dispose of unwanted materials continues.

For some longtime residents, the river will always be a dirty place, and the seasonal effects of dam turbines, which slice up fish and spew out the decomposing parts to float through the downtown, do not help shift that perception. Extreme fluctuations in water levels that result from the Graham Lake dam storing and releasing water to maximize revenue from power generation also contribute to perceptions of the river as a "dirty" place.[12] However, the resulting turbidity and low levels of dissolved oxygen amount to more than a threat to the river. Clearly, "dirty" is not how we want residents and visitors to picture Ellsworth's most distinctive natural feature—and, by association, the city itself.

Ellsworth's lakes and streams currently vary in their water quality, but most remain comparatively free of serious contamination and in some cases benefit from regular inspections by professionals and volunteers determined to keep things that way. Elsewhere in Maine, however, even within Hancock County, pressures resulting from shoreline development and public access have compromised many water bodies and have precipitated plummeting property values as well as million-dollar cleanup programs. Avoiding such degradation of our resources and expense in Ellsworth will require ongoing proactive vigilance.

A final and more inevitable threat is sea level rise combined with the effects of increasingly extreme and violent storms. Predictions for rising high-tide levels on the Maine coast range between 3 and 9 feet by 2100, but they require planning now if we are to avoid loss of life and damage to both property and critical shoreline habitat.[13] This

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[12] Mark Whiting, "A Turbidity Study for the Union River and a Discussion of Water Level Fluctuations in Graham Lake," Jan. 9, 2017, https://mainesalmonrivers.org/wp-content/uploads/2017/01/Union-River-Turbidity-Study.pdf.

[13] Climate Central, Surging Seas Risk Zone Map. https://ss2.climatecentral.org/#16/44.5193/-68.4192?show=satellite&projections=1-K14_RCP85-SLR&level=3&unit=feet&pois=hide; National Oceanic and Atmospheric Administration, Office of Coastal Management, Sea Level Rise Viewer, https://coast.noaa.gov/slr/#/layer/slr/5/-7617917.582583464/5550081.765365806/15/satellite/none/0.8/2050/interHigh/midAccretion; The Nature Conservancy, Coastal Resiliency Maps, https://maps.coastalresilience.org/maine/.

threat poses a challenge, but it also constitutes further impetus and opportunity in realizing the long-awaited redevelopment of the city's waterfront.

III. Guiding Principles and Objectives

In order to achieve our overall goal and vision for the sustainability of Ellsworth's water resources, we first established some guiding principles and objectives which have informed our analysis of current conditions and framed our recommendations and action plan for the next ten years. Unanticipated issues and opportunities will inevitably arise over the next ten years, so these guidelines should also be useful in determining how to integrate the unanticipated with our specific action plan. Beyond the implementation work of Green Ellsworth, we stand a much better chance of realizing our goal and vision for Ellsworth's water resources if day-to-day decision making and actions within the community—from the level of city government to that of individual businesses and home owners—are also informed by overarching principles and objectives. Beyond the many specific opportunities for engagement and action offered in the remaining sections of this chapter, these principles and objectives can help the community address fundamental sustainability questions. In the context of an evolving water management program for the community, on what basis should each of us proceed to ensure a balance between public access and preservation of our aquatic and shoreline ecosystems? In maximizing the benefits of these ecosystems for all, how do we resolve potentially conflicting priorities?

A. Guiding Principles

a. Protecting and enhancing the quality of our water resources will be a major consideration at both public and private levels in our community.

b. All of our water resources and the extended human and environmental networks they support will be seen as components of an integrated system in which one compromised element potentially compromises the entire system.

c. As assets that observe no boundaries, surface water and groundwater will be treated as community assets to which all must have access and for which all must assume responsibility for their long-term sustainability.

d. Because the Union River watershed is at the heart of our culture and heritage, preserving its ecological integrity and reclaiming our downtown waterfront as a community access point for celebrating the river will be one of the city's highest priorities.

e. Given the increasingly precious and volatile nature of water, land and water management at both public and private levels will prioritize best green practices for retaining and filtering stormwater and other runoff.

B. Objectives

a. A Foundation for Understanding and Protecting Our Water

To establish an integrated and coordinated framework of organizations and services (e.g., data, communications, educational programming) to support our overall sustainability objectives and action plan for water resources.

b. Access to Clean Drinking Water

To ensure access to abundant clean drinking water for all Ellsworth citizens.

c. Healthy Lakes and Ponds

To foster ecologically healthy lakes and ponds that support abundant stocks of native fish and other wildlife, as well as human access for residential, recreational, and commercial purposes.

d. A Revitalized Union River Waterfront and Watershed

To protect and revitalize the Union River ecosystem and our downtown waterfront in such a way as to emphasize its centrality as the cultural, recreational, commercial, and environmental heart of our community.

e. Upgraded Natural and Built Stormwater Infrastructure

To advocate for an upgraded and integrated stormwater management system that uses natural and landscaped green infrastructure to maximize the retention of stormwater and minimize damage to our surface water and groundwater.

f. Access to the Water

To enhance and protect public access to the diversity of our water assets.

g. Enhanced Community Engagement and Capacity

To generate increased and ongoing citizen engagement in realizing the community's vision and goals for its water assets.

To expand community capacity through the development of local and external partnerships, resources, expertise, and funding that will augment and maximize the impact of local funding for these objectives.

IV. What Is Working?

Ellsworth's most valuable assets may be its water resources and citizen commitment to their long-term sustainability. These assets and the extended ecosystems they support constitute not only valuable environmental capital but also social, cultural, and economic capital, all of which are in evidence as visitors and residents congregate around any one of the city's lakes or ponds that contribute significantly to the tax base.

A. A Foundation for Understanding and Protecting Our Water

Ellsworth is fortunate to have several organizations concerned with water resources. Representatives of various lake associations, the Hancock County Soil and Water District, Downeast Salmon Federation, Downeast Audubon, Lake Stewards of Maine, and of course the City of Ellsworth have all contributed to this chapter of the Green Plan. Acting independently within their own mandates, these organizations also have paid staff or volunteers engaged in water testing and inspections, collection of data and information, and preparation of educational materials and programming relating to water resources. Other agencies and organizations, such as the MDI Biological Laboratory, Maine Lakes Society, Maine Audubon Society, Maine Department of Environmental Protection, and Maine Department of Inland Fish and Wildlife, to name but a few, currently offer additional data, funding, websites, and other informational and educational programming focused on protecting water resources.

B. Access to Clean Drinking Water

Comprising nearly 3,000 acres and just over 26 miles of shoreline, Branch Lake is the city's third largest lake and its public water supply. Since the 2004 Comprehensive Plan, the city, with the help of land conservation organizations and the Branch Lake Association, has conserved large tracts of land around Branch Lake, altered its zoning, and instituted boat and water inspections, all to protect the quality of the city's public drinking water. All boats on the lake must have inspection stickers, and inspections are done by trained Certified Boat Inspectors (CBIs). The lake's water quality consistently tests above average.[14] The City of Ellsworth Water Department routinely tests for water quality and invasive aquatic plants (IAPs) on approximately 20% of the shoreline around the water treatment plant, and is working with the Branch Lake Association to expand testing and surveys. Thanks to the association's dedicated volunteers, the lake has a very successful Invasive Plant Patrol (IPP) program which regularly inspects 100% of the lake that could contain IAPs. As far as is currently known, the lake remains free of invasive species. Volunteers also address other issues such as loon conservation and erosion due to nonpoint source pollution (NPSP).[15] All this has helped keep Branch Lake one of the five clearest lakes in Maine, with a regular visibility of 32 feet in depth. This is despite being at pollution risk due to the very low flushing time of two to three years for lake water turnover. It requires three flushes to clean up a lake pollutant.

The city has also purchased 7-acre Simmons Pond (in the town of Hancock) and 6 acres of adjacent property as a backup public water supply. This small spring-fed kettlehole pond was chemically treated to eliminate an infestation of bait fish in 1995. Recent test results for water quality do not appear to be available.

Given that the public water supply does not extend to all parts of the city, many Ellsworth residents also depend on our abundant access to clean groundwater. A large aquifer (Aquifer #19 on Maine Geological Survey Map 27) passes through Ellsworth as it stretches from Fletcher's Landing on Graham Lake though Washington Junction and

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[14] Water quality data cited in this chapter are taken from local tests and from data available for Ellsworth lakes at www.lakesofmaine.org/search-results.html?DoWhat=&l=&t=&z=04605&m=; www.lakesofmaine.org/data/2017_Lake_Reports/4328_1.html.

[15] Nonpoint source pollution: Pollution caused by rainfall or snowmelt which runs over and through the ground, carrying away pollutants and depositing them in water bodies or groundwater.

Lamoine. This esker feeds Simmons Pond and the Card Brook wetlands, in addition to the city's groundwater. Other notable eskers are located near Upper and Lower Patten Ponds.

C. Healthy Lakes and Ponds

With nearly 90 perimeter miles and more than 9,300 acres, Graham Lake is by far Ellsworth's largest and deepest lake. Our second largest lake, Green Lake (nearly 28 perimeter miles and more than 3,100 acres), empties into Graham Lake and is home to the historic Green Lake National Fish Hatchery, which remains an important source for salmon and other cold-water fish stocks. Smaller water bodies include the Union River dam impoundment known as Leonard Lake, Upper and Lower Patten Ponds, Little Rocky Pond, Little Duck Pond, Wormwood Pond, Bog Pond, and Jesse Bog. The considerable development experienced by most of the larger lakes and ponds in the past 10 to 15 years underscores what scenic and recreational assets they are for the community—not to mention their economic significance for the city's tax revenue. Lake Stewards of Maine posts water quality data for five of these water bodies (Graham Lake, Green Lake, Upper and Lower Patten Ponds, and Little Rocky Pond). A recent reduction in acid rain may have improved the health of some of these lakes, but variation in the regularity of testing and the array of testing data available make it difficult to assess the overall health of any of them with respect to transparency, water quality, dissolved oxygen, and temperature.

In conjunction with the IPP program of Lake Stewards of Maine (LSM), several lakes besides Branch Lake (Green Lake, Upper and Lower Patten Ponds, and Graham Lake) now have volunteers who regularly inspect for IAPs. Additionally, the Hancock County chapter of LSM has done inspections on other water bodies, and most recently the Hancock County Lakes Association has brought many of these people together with others to work in association with LSM for a broader purpose. Their goal is to eventually have all lakes in Hancock County (100 plus) receive an IAP survey every three years, and for all lakes evaluated as high risk to have at least some CBI coverage. So far there are no signs of IAPs in Hancock County.

D. A Revitalized Union River Waterfront and Watershed

The Union River watershed originates north of Ellsworth in a largely undeveloped area that is designated as a Focus Area of State Ecological Significance because of its excellent water quality and support for several endangered species. It provides critical waterfowl habitat.[16] Second in size only to the St. Croix watershed in eastern Maine, the Union River watershed simultaneously draws from and feeds nearly 34,000 acres of lakes and ponds before it reaches downtown Ellsworth. There it dominates the city's landscape just as it has dominated the city's history.

Two dams on the river, owned by Canada-based Brookfield Asset Management, generate some power for the New England power grid and create Leonard and Graham Lakes. Built in 1907, the Leonard Lake dam and powerhouse are listed on the National Register of Historic Places. The Graham Lake dam was built in 1922 and breached later that year, flooding much of downtown; it was rebuilt the following year. A third dam, on Green Lake, also generates power, and a fourth dam on Branch Lake helps maintain healthy lake levels for the public water supply. The large numbers of sea-run fish that were reported by early settlers have been compromised by these and earlier dams. However, the limited alewive and eel fisheries already mentioned testify to the ongoing commercial and recreational potential of the river's fishery. The watershed has the potential to support 4 to 7 million adult alewives, not to mention significant numbers of immature fish[17] (see Online Support Materials[18]). The river and its shorefront are also frequented by fishers, boaters (including canoers and kayakers in the whitewater in the free-flowing section above the Leonard Lake dam), walkers, and joggers.

As an increasingly busy facility, Harbor Park and Marina gives some indication of the demand for recreational access to the river and, via the river, to the waters around Mt.

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[16] Department of Inland Fish and Wildlife (not dated). Upper Union River: Focus Areas of Statewide Ecological Significance. Available at www.beginningwithhabitat.org. The upper West Branch of the Union River below Great Pond all the way to Graham Lake is free-flowing. Rare species supported in the upper Union include Atlantic salmon, brook floater mussel, ribbon snake, wood turtle, and the orchid *Platanthera flava* var. *herbiola*. It also supports wading bird and waterfowl habitat.

[17] Downeast Salmon Federation. For a broader study on the alewife population in the Union River, see "Alewife Restoration in the Union River Watershed: A Report by the River Ecology and Conservation Class," College of the Atlantic, June 2004, www.gulfofmaine.org/kb/files/9409/Alewife%20reintroduction%20report.pdf.

[18] All Online Support Materials referenced in this plan can be found under the Green Plan and relevant action team or focus area pages at www.greenellsworth.org.

Desert Island, neighboring harbors, and the ocean. Dredging has made the river more easily accessible to recreational boaters, and the new, relocated wastewater treatment plant has improved water quality in the river while doubling the size of Harbor Park. Many people visit the park daily, year-round, to watch the tides, birds, and other marine life, and there is overwhelming community support for waterfront redevelopment that will further facilitate returning the community's attention to the river in a manner suggested by the 2002 Waterfront Master Plan.

While that 2002 plan has not been implemented, there have been small steps in its direction. The city has extended the walkway at Harbor Park across the old treatment plant property to Water Street, and Frenchman Bay Conservancy, together with a group of concerned citizens, is negotiating with Water Street property owners to allow a walkway all along the river from Harbor Park to the Union River bridge. The Ellsworth Garden Club and Frenchman Bay Conservancy are partnering to refurbish the existing River Walk behind the library and extend it as an urban hike linking the downtown with the Central Street neighborhood. These redevelopment projects also create an opportunity to address new and ongoing challenges such as sea level rise and shorefront erosion. Additionally, a Museum in the Streets project organized by the Ellsworth Historical Society, the Historic Preservation Commission, and business partners is expected to help highlight the historical and environmental significance of the river's ecosystem.

E. Upgraded Natural and Built Stormwater Infrastructure

Ellsworth encompasses large tracts of forested land, wetlands, and other natural areas, all of which act as natural green infrastructure—reservoirs that conserve the increasingly precious and scarce commodity of water. Apart from providing critical habitat, these areas absorb and filter stormwater and thereby help mitigate its effects on the quality of our water resources and on the amount of water that flows through more heavily populated areas of Ellsworth. They help reduce the erosion of soil and nutrients and the risks of flooding, while recharging groundwater aquifers and gradually releasing surface water over time.

The Meadowbrook Forest purchased by Blue Hill Heritage Trust in 2019 conserves a significant portion of coastal wetlands that drain into Union River Bay. Birdsacre

(Stanwood Wildlife Sanctuary) and the Jordan Homestead, the latter recently conserved by Frenchman Bay Conservancy, preserve forested wetland areas close to the city core that drain into the Union River via Whitaker Brook. Even more significant for natural water management in the city core, the Card Brook wetlands and the critical forested area behind Maine Coast Mall drain and protect the busy High Street area while also providing havens for water-loving wildlife and plants that can be seen from the Downeast Scenic Railroad and along the Downeast Sunrise Trail connector leading from Ellsworth to Washington Junction. Another forested wetlands asset can be found at the head of Branch Lake, the public water supply. The wetlands around Tannery Brook, which drains Floods, Burnt, and Springy Ponds into Branch Lake, clearly have an impact on the lake's water quality—as do the 700 acres of forested lands around the lower part of the lake conserved in 2010 (see Chapter 2).

While this is just a sampling of Ellsworth's natural green infrastructure, the city's public and private human-made stormwater infrastructure is also critical to mitigating the effects of stormwater runoff. The city has recognized the weakness of its aging public stormwater system and taken initial steps to address what it describes in a Coastal Communities Grant report as "a mix of old dilapidated and rusted undersized pipes, abandoned sewer pipes, and catch basins." In the same report, the city acknowledges that it "cannot continue to grow and develop without addressing existing storm-water issues through the proper maintenance, upgrade, and overall management of the existing stormwater system."[19] Working with several partners, the city began a GIS inventory of the system that helped identify infrastructure vulnerabilities and enabled it to assess and prioritize emergency management needs. Further insights into the stormwater system came from a 2014 College of the Atlantic land-use class that paid particular attention to public and private drainage in the urban area around Card Brook. The city has also addressed private stormwater management by revising its Stormwater Management

[19] https://seagrant.umaine.edu/extension/coastal-community-adaptation-strategies-in-a-changing-climate/; see report at www.maine.gov/dacf/municipalplanning/casestudies/docs/52_%20Ellsworth%20FY%2015%20CCG%20Stormwater%20Mngmt%20&%20Adaptation%20Plan.pdf.

Design and Construction Standards (Chapter 56, Unified Development Ordinance, Article 10, 2012) to improve expectations for development and redevelopment projects.

F. Access to the Water

This is an issue that unites longtime city residents as well as newer residents and visitors. The pressures of development have reduced public access to our water resources and have eroded the culture of public access over private property that was a way of life in Maine for decades. Despite this reality, it is important to recognize the array of assets that currently do provide public access to the water. For some time, the city has owned property along the Union River and along Leonard, Green, Graham, and Branch Lakes which provides some access for boating, fishing, swimming, hiking, and other recreational activities. Long-term access has been further augmented by private property owners such as ENMAX Corporation and other businesses.

In the past 15 years, municipally maintained access has also been enhanced by Frenchman Bay Conservancy (Indian Point, Branch Lake Public Forest, and Jordan Homestead), Blue Hill Heritage Trust (Meadowbrook Forest), the National Fish Hatchery trail system, the State of Maine (refurbished Branch Lake boat launch), and the Downeast Sunrise Trail connector. Additionally, a partnership involving Frenchman Bay Conservancy and the Ellsworth Garden Club has led to a current project to acquire conservation easements for the River Walk behind the library and to refurbish the walk.

G. Enhanced Community Engagement and Capacity

The River Walk provides an excellent example of the level of citizen engagement around Ellsworth's water resources. The River Walk was created in 1963 by community volunteers, and a call for volunteers to help refurbish it in 2018 generated more than 100 volunteers in just a few weeks. This is only one example of the number of citizens who want to help move toward greater access and appreciation of our waterfront, as documented in surveys, studies, and visioning efforts stretching back nearly 20 years. More broadly, multiple stakeholders (individual families, businesses, volunteer citizen scientists, lake and conservation associations, other nonprofits, and the city) have demonstrated the community will to prioritize the protection of our water resources and

the capacity to enhance them (e.g., through the conservation of shorefront property, volunteer teams for boat inspections, IPP and water quality surveys, and the now-annual Card Brook cleanup). Two large Green Plan subcommittees that focused on the river and water quality and that contributed a significant number of volunteer hours to provide input for this document are yet another example of the potential afforded by citizen engagement.

Numerous national, state, and county organizations offer the potential to partner with, educate, and fund local groups engaged in water-related initiatives. In addition to the many federal government departments, agencies, and foundations we have identified as sources of funding for water-related recommendations (see Appendix 2), there is a wide range of other organizations that are current or potential partners and funders. For example, the expanding IPP programs of Lake Stewards of Maine and the new Hancock County Lakes Association have already been mentioned.[20] The Maine Lakes Society's LakeSmart program promotes surveys directed at identifying NPSP and a certification system for good stewards of lakefront properties.[21] The Downeast Salmon Federation has played a critical role in ensuring appropriate environmental considerations in the relicensing of the Ellsworth and Graham Lake dams, and will be an important interested party as relicensing of the Green Lake dam proceeds.

The Maine Departments of Environmental Protection (DEP) and Marine Resources (DMR) both have useful documents and links to assist with maintaining water resources. The DEP runs watershed surveys and offers grants that could assist with many of the recommendations in this plan. The DMR manages several grant programs that will be critical for waterfront redevelopment. The Island Institute has also offered to help the city plan for sea level rise in the context of its waterfront renewal. Research and educational institutions have been important resources for research findings and outreach mechanisms (e.g., College of the Atlantic, MDI Biological Laboratory, the Shaw Institute, and the University of Maine Sustainable Solutions Initiative). Although basic needs and citizen

[20] www.mainevlmp.org/mciap/herbarium/TipsForUsing.php.
[21] https://mainelakessociety.org/lakesmart-2/. A similar program, StreamSmart, offered through the efforts of 16 partners, provides support for implementing best management practices for stream crossings: www.maineaudubon.org/projects/stream-smart/partners-supporters/.

aspirations for further enhancement, even over the ten-year period covered by this plan, may seem to stretch available human and financial resources, seeking to proactively protect and enhance our water assets offers the opportunity for us to augment existing human and financial resources by accessing volunteers, partners, and funds to an extent that would not be possible by simply maintaining the status quo.

V. What Is Not Working?

In the context of green planning, Ellsworth citizens, business leaders, and nonprofits were quick to identify the value of our water-related assets. They drew attention to recent accomplishments that have enhanced those assets (especially recently acquired property providing public access to the water). However, they also saw many more opportunities presented by our water resources and communicated a high level of frustration and anxiety regarding existing and potential problems regarding their longer-term sustainability. Our participants expressed concern that the vulnerability and significance of all of these assets are not sufficiently appreciated to inform decision making and actions at all levels. They identified numerous obstacles and challenges to realizing the full potential of these resources, but saw none of them as insurmountable with due focus and a strategic action plan. The analyses and recommended actions that follow are intended to catalyze a more coordinated and systematic effort involving not only green planning participants but also the city, other partner organizations, and funders to realize our sustainability objectives over the next ten years.

A. A Foundation for Understanding and Protecting Our Water

Access to comprehensive information about the state of our river, lakes, and streams is essential for their protection and enhancement. First and foremost, this includes having scientifically reliable and comparable data derived from regular testing, surveys, and inspections:

- Water quality testing for transparency, dissolved oxygen, temperature, chemistry (e.g., pH, chlorophyll, phosphorus, color, alkalinity, conductivity[22]), and fish mercury levels
- Surveys of NPSP sources on land
- Inspections of entire water bodies for IAPs
- Certified boat inspections for IAPs at all boat launches

The city undertakes some tests on Branch Lake, and IPPs are active on several of Ellsworth's lakes. Lake Stewards of Maine, in partnership with the Maine DEP, makes data for some Ellsworth lakes available on its website. These data reveal the lack of comprehensive and regular water quality testing even on the city's largest lakes, and data for the smaller ponds and lakes are either greatly out of date (1990–1991 being the most recent for Upper Patten Pond and Little Rocky Pond) or nonexistent (all other smaller water bodies). Data relating to the river and streams are less easily available than those for our lakes and ponds and appear not to be within the capacity of the DEP to fully monitor. Studies of the river recently commissioned by the Downeast Salmon Federation for the federal dam relicensing process provide some important water quality data. However, the most recent DEP Integrated Water Quality Monitoring and Assessment Report (2016) lists the Union River and most of its tributaries (except Card Brook) as lacking sufficient information for full assessment. Monitoring of problematic NPSP and any correction of it is dependent on watershed surveys and also not easily accessed online. We cannot adequately manage what we do not measure. We need a comprehensive system or schedule that ensures that all water bodies are periodically tested, inspected, and surveyed and that either with the posting of original data or links to other sites there is a centralized public posting for data relating to Ellsworth and the Union River watershed. Such a program will not happen overnight, but Green Ellsworth can work with some of the organizations and agencies mentioned here to coordinate and

[22] Conductivity refers to the capacity of water to conduct electricity due to the presence or absence of certain chemicals or elements. See https://blog.jencoi.com/tag/conductivity for further information.

facilitate a move in that direction—including recruiting volunteer citizen scientists to help with testing and providing an electronic site where data and links can be posted.

Recommendation W-1: Facilitate and coordinate a comprehensive program for monitoring our water resources and publicly post resulting data and links for Ellsworth and the Union River watershed online.

These data will establish a base from which improvements or deterioration can be measured against standards and goals, but even maintaining the status quo will require a combination of regulations, enforcement, and education. Members of the public, and especially every shorefront property owner or renter, should understand what they need to do to be good stewards of our water resources. As with data collection, various organizations currently provide information on specific water quality topics (e.g., avoiding IAP infestations and NPSP) to their members and in some cases the public, but again, there are gaps in who is receiving what information and how often it is circulated. A coordinated effort employing several modes of education would be most effective—website postings and printed brochures, public presentations and workshops on best practices, volunteer recruitment and training, peer-to-peer contact, and programs for recognizing model property owners (such as the LakeSmart program for NPSP prevention). This could involve an initial targeted effort focused on the city's public water supply, Branch Lake, and then an incremental extension of educational efforts to other lakes and shorefront property owners. The city would have a key role to play in circulating informational material at City Hall and in its regular mailings to property owners.

Recommendation W-2: Coordinate informational materials and educational programming aimed at supporting and encouraging the best possible stewardship of the city's water resources.

Water respects no municipal boundaries. Waters in the Union River and Card Brook watersheds, for instance, flow through multiple municipalities. Several of our lakes and ponds are shared by more than one community. What happens up- and downstream or across the lake can affect the entire system. Apart from the need to coordinate data collection and public posting as well as informational and educational efforts, there is a

need to explore common issues and exchange best management practices or other information across municipalities, lake associations, and other organizations and agencies.

Recommendation W-3: Convene a network of municipalities, lake associations, and other organizations and agencies with an interest in the Union River and Card Brook watersheds.

B. Access to Clean Drinking Water

Although the city and private landowners have attempted to maximize protection of the city's public water supply, Branch Lake's water quality is at risk because of recreational activities and increased development. Unlike undeveloped lakes such as Floods Pond (Bangor's water source) and Hatcase Pond (Brewer's water source), Ellsworth's water supply is particularly vulnerable to several potential problems, from IAPs to poisonous algae blooms. These are serious problems in any lake, but in a public water source the effects and costly interventions needed to restore water quality are so daunting for taxpayers that we need to make every effort to avoid them.

In 2018 residents of East Pond in the Belgrade Lakes region faced declining property values if they did not come up with $1 million to reduce recurrent algae blooms in their lake. They observed that "people come to Maine to get out of the cities and to be on the lakes. They want that clear Maine lake water that they can spend the day on."[23] Studies of property values around Maine lakes have demonstrated a direct correlation between water clarity and property values. Elsewhere, such as at Lake Bomoseen in Vermont, property values have declined by as much as 50% due to compromised water clarity and invasive plants.[24]

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[23] Rachel Ohm,"Treatment Expected to Rid East Pond of Algae Blooms," *Morning Sentinel*; www.centralmaine.com/2018/06/11/treatment-expected-to-rid-east-pond-of-algae-blooms/.

[24] Holly J. Michael, Kevin J. Boyle, and Roy Bouchard, "MR398: Water Quality Affects Property Prices: A Case Study of Selected Maine Lakes," *Agricultural and Forest Experiment Station Miscellaneous Report* 398, 1996; www.midcoastconservancy.org/wp-content/uploads/2017/01/MR398-Water-Quality-Affects-Property-Prices-A-Case-Study-of-Sel-1.pdf.

The connection between water quality, recreational appeal, and property value is further clarified by an example closer to home in Hancock County. Also in 2018, Georges Pond in Franklin became a "350-acre bowl of pea soup" due to "a severe algae bloom." Property owners complained about the smell and compared jet skiing on the pond to "going through oil."[25] The combination of higher temperatures and increased phosphorus derived from things such as septic systems, chemical fertilizers, and roadway development is generating expensive algal growth all over the state. Twenty-five years ago, algae blooms were unheard of on Maine lakes. Today 58 lakes have experienced them. If Ellsworth is not proactive, its lakes and in particular its public water source could suffer a fate similar to that of East Pond and Georges Pond.

Few people want to live or vacation on a lake where you cannot swim or boat because of rotten vegetation clogging the shores. The resulting drop in property value would inevitably result in a decline in the 34% of tax revenue received from lakefront owners, but given that Branch Lake is our water supply, Ellsworth would also face increased expenses for processing its drinking water and mitigating the compromised water quality in the lake. This would then result in increased property taxes for Ellsworth residents. To prevent this very real possibility, the city needs to invest in measures to avoid such a development. It cannot afford to do otherwise.

Although we are dependent on the most recent, limited test results from 2018, for now it appears that Branch Lake's water quality has actually improved since 1975 with respect to some indicators (pH, phosphorus, and clarity, the last of which is usually excellent at more than 30 feet but drops to less than 20 feet after storms). However, its color seems to be worsening from excellent to good (a shift from 25 to 125, on a scale with 500 being very tannin yellow brown but still clear).[26] Beginning in 2013, the intensity of the city's testing on the lake appears to have relaxed, despite the fact that sections of the lake not regularly tested appear to be experiencing difficulties. The largest inlet for the lake empties into Winkumpaugh Cove, which according to residents has changed significantly

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[25] Lisa Branch, "Algae Bloom Turns Hancock County Pond into a Mucky Green Mess," *Bangor Daily News,* Sept. 7, 2018; https://bangordailynews.com/2018/09/07/news/hancock/algae-bloom-on-small-hancock-county-pond-worse-than-ever-residents-say/.

[26] www.lakesofmaine.org/data/2017_Lake_Reports/4328_1.html.

in depth (from more than 10 feet 20 years ago to 3 feet in more than 50% of the cove today), making it navigable only by shallow-bottomed boats such as canoes and kayaks. Property owners near Tannery Brook have also reported a change in water quality. Regular and thorough testing can provide early detection before an undetected trend results in an algae bloom. This can be made doable and affordable in part by engaging a team of trained volunteers similar to the IPP team already active on Branch Lake.

Recommendation W-4: Improve the extent, regularity, and public documentation of testing on Branch Lake, including the Winkumpaugh Cove and Tannery Brook areas. This should include June–September bimonthly tests for transparency, dissolved oxygen and temperature (at various depths), and chemistry. Fish mercury should also be tested annually. Data for all of these tests should be publicly posted annually, if not more frequently.

The cause of changes to water quality in Branch Lake is not certain, but bridges upstream on Happytown Road have washed out multiple times in the last five years, releasing significant amounts of silt with potential phosphorus contamination. Stream crossings on Bald Mountain Road and an upstream crossing on Happytown Road have been replaced by open-bottom structures, restoring aquatic connectivity and necessary storm resilience designed to accommodate 100-plus-year storm events. More interventions of this nature are needed, including paving all of the unpaved sections of Happytown and Winkumpaugh Roads in order to control NPSP.

Recommendation W-5: Fully pave all publicly maintained roads around Branch Lake and construct or reconstruct all stream crossings to mitigate NPSP.

Phosphorus pollution from privately maintained gravel roads around the lake also poses a major threat to the clarity and drinkability of Branch Lake water. Private road associations have the power to charge dues, and if they are unpaid the associations can enforce payment in conjunction with property taxes. Often, however, even if associations have the financial resources to maintain their roads, they lack the knowledge or interest to use best practices (e.g., relating to culvert installation, surface maintenance, vegetative buffers) in managing stormwater runoff to avoid NPSP.

Recommendation W-6: Reconstruct and improve the maintenance of road association roads around Branch Lake to minimize NPSP. Maine Audubon's StreamSmart workshops and educational programs regarding best management practices should be a major resource for this effort.

Additionally, many houses around the lake and in the watershed do not have good driveway or roof runoff control. A developed lot with poor stormwater control can result in 500% more NPSP than a natural landscape. Disturbed soil is the primary cause of such pollution, so the construction process itself can be problematic. Although contractors are educated with respect to required best practices for preventing NPSP, instances of new home construction without the required buffer protection, which have been reported to code enforcement officials, have continued. If you add to these problems the city's inadequate codes relating to septic systems and plumbing in the context of increased development and property rental, the risk to our drinking water is significant. Limiting development of properties in the watershed, especially in the shoreline zones, possibly by doubling the required lot size, would be an important step in protecting Ellsworth's public water source.

Recommendation W-7: Coordinate efforts to reduce threats of NPSP through the introduction of improved ordinances; better enforcement; incentives and rewards for best practices; and education and training to mitigate the impact of stormwater runoff, inadequate plumbing, and the current rate and intensity of development on Branch Lake. Reductions in lake association dues or property taxes, as well as public recognition for model properties, could all be effective incentives for better control of NPSP.

The best way to understand and document the NPSP problems in the Branch Lake watershed would be to undertake a watershed survey that could inform a watershed management plan. This would involve citizen scientists trained to address NPSP, just as the Branch Lake IPP trains people to address IAPs. The last watershed survey, which was done in 2008, identified NPSP problems which were then addressed. Surveys should be done every ten years, so the next one is long overdue, especially given the level of development around the lake since 2008. A watershed management plan would provide for longer-term measures to address some of the specific problems noted above.

Recommendation W-8: Undertake a Branch Lake watershed survey and then watershed management plan as soon as possible, and update both at least every ten years.

IAPs constitute another potential risk to the public water supply. Looking at other lakes in Maine and even in Hancock County, it is readily apparent how vulnerable Branch Lake and other Ellsworth lakes are. Sebago Lake, which provides drinking water for 15% of Maine's population (in the greater Portland area), has steadily deteriorated in clarity since 1998, and it has become infested with IAPs. Since 2000 more than 20 lakes in Maine have suffered such a fate.[27] In 2018 an inspection at Toddy Pond, less than a mile from Ellsworth, identified and disposed of a piece of milfoil before it could reach the water, but that Hancock County story could have had a different ending.[28] Now Big Lake in Washington County has a large invasive milfoil infestation, discovered in 2019. This puts Beech Hill Pond at risk because of planes that fly between the lakes. From Beech Hill, it is an easy jump to Green and Branch Lakes, especially given that ducks and geese travel between our lakes.

Regular inspection thanks to Branch Lake's active IPP team is obviously important for early detection of IAPs, but other avenues for better protection need to be considered. Beyond Certified Boat Inspections at the state-run boat launch, the lake remains vulnerable due to 68 private boat ramps (without inspections) and float planes which have open access to the lake.[29] Adding to this problem are the increasing numbers of vacation rentals on the lake through services such as Airbnb and Vrbo. Renters are less likely to understand the potential risks to the lake or have a commitment to lake stewardship.

Recommendation W-9: Reduce the risk of introducing IAPs at private boat ramps on Branch Lake by using a multifaceted approach: restricting allowable use (including a required clause in rental agreements); stipulating fines for rental and other property

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[27]Mario Teisl and Kate Warner, "Why There's Cause for Concern with Maine's Water Supply," *Bangor Daily News*, Aug. 1, 2015; https://bangordailynews.com/2015/08/01/outdoors/why-theres-cause-for-concern-with-maines-water-supply/.

[28] www.maine.gov/dep/water/invasives/inspect.html.

[29] Even the Seaplane Pilots Association recognizes the potential risk these planes present for the introduction of IAPs and supports a related educational program for its members; www.seaplanepilotsassociation.org/invasive-species/.

owners who fail to follow and enforce the restrictions; offering educational materials regarding the dangers of IAPs at private boat ramps; and encouraging the closure of those ramps using available grant programs. This could be a pilot program for subsequent extension to other Ellsworth lakes.

Recommendation W-10: Prohibit the use of Branch Lake by float planes.

A final consideration for Branch Lake is the dam, which maintains healthy lake levels. The most recent repairs to it were done in the 1990s, with the expectation that the dam would last another 20 years. It is now well beyond that life expectancy, and it is unclear if the dam is even regularly inspected. Its condition poses not only a downstream hazard but a potential liability for the city and for property owners experiencing a drop in lake levels, especially in late summer.

Recommendation W-11: Repair and regularly inspect the Branch Lake dam.

Turning now from the state of our public water supply to the built infrastructure we depend on for its delivery in the community, we discover other sustainability issues. Out of a concern for the costs involved, the city has not extended its water supply to sparsely populated new developments outside the city core, so residents in those areas rely on well water. However, as those areas served by wells have become more densely developed—and other areas have been developed even further beyond the core—pressure on the aquifer continues to increase, and residents in new developments cannot access the public water supply even if they would like to. While the significant growth the city has experienced in the twenty-first century has been encouraged and welcomed by city government, the long-term costs of further expansion into previously rural areas have not been fully acknowledged or incorporated into the permitting and taxation systems. This includes the potential cost of extending the public water supply into the "donut" of what are now fully developed areas lacking public water access outside the city core. This constitutes an unsustainable deferred debt that future citizens will have to pay, and raises the concern that the city will not be able to ensure long-term affordable access by its citizens to this basic essential.

Recommendation W-12: Commission a study to determine the long-term demand for public water and develop a phased strategy for improving the public water infrastructure. The phased strategy should include fully extending the public water supply to developed areas beyond its current service and instituting mechanisms for paying for this work that will ensure the sustainability of affordable access to public water.

Recommendation W-13: Begin phased implementation of the public water strategy.

The current reality of well water dependence in the city of course makes protecting our groundwater just as important as protecting the surface water from Branch Lake. Groundwater in Ellsworth has been generally abundant and of good quality, but there are several reasons we should not take this quality for granted. Arsenic, uranium, radon, and other naturally occurring chemicals derived from bedrock are cause for concern, given that Hancock County has the third highest percentage of tested wells above state guidelines for arsenic as well as high levels of other chemicals.[30] Problems due to historical practices of dumping chemicals and waste in areas that drain into aquifers have also arisen in Ellsworth. For instance, beginning in the 1980s, discharge of polychlorinated biphenyls (PCBs), solvents, and waste oil contaminated the groundwater supply for residents in the Boggy Brook area to such an extent that in 2013 it was deemed beyond remediation. This will continue to affect groundwater beneath Gilpatrick Stream and any wells that had been dug in that area for the foreseeable future. Also, as sea level rises and further development dependent on well water proceeds along the river (in areas such as Bayside), the potential for the salination of groundwater will increase.

[30] Well Water Data, Environmental Public Health Data Portal; https://gateway.maine.gov/cognos/cgi-bin/cognosisapi.dll?b_action=cognosViewer&ui.action=run&ui.object=%2fcontent%2ffolder%5B%40name%3d%27CDC%20EOHP%20EPHT%20AVR%27%5D%2freportView%5B%40name%3d%27Maine%20Environmental%20Public%20Health%20Tracking%20%28EPHT%29%20Network%20-%20Public%20Data%20Portal%27%5D&cv.header=false&cv.toolbar=false.

Recommendation W-14: Work with the MDI Biological Laboratory to facilitate a study of well water in Ellsworth, and promote a regular educational program for schoolchildren and the public that encourages residents to have wells tested every three to five years.[31]

A final concern regarding Ellsworth's groundwater relates to the large-scale excavation of sand and gravel from the esker that cuts diagonally through the city and feeds the city's backup water supply at Simmons Pond as well as the Card Brook wetlands. Smaller-scale excavations of eskers in the vicinity of the Patten ponds and Meadowbrook Forest wetlands are also being undertaken. Given the potential effects of excavation on drinking water, how much of these eskers can be removed before they cease to perform the filtering and pumping services to maintain a healthy supply of well water and feed our backup public water supply? The city needs to conserve a buffer over its major esker as well as around the Card Brook wetlands, but it has no ordinance (such as that in place in the surrounding communities of Hancock and Lamoine) that governs gravel extraction beyond regulations in place through the state—and state regulations govern gravel pits only 5 acres or more in size.

Recommendation W-15: Introduce an ordinance that establishes standards beyond the minimum required by the state with respect to such things as the location, size, and depth relative to the water table of gravel pits, and couple this ordinance with periodic monitoring and proactive inspections by publicly contracted qualified personnel paid for by fees charged to gravel pit operators.

C. Healthy Lakes and Ponds

While the water quality in Branch and Green Lakes is above average, the quality in Lower Patten Pond is average and in Graham Lake below average and impaired. As in Branch Lake, clarity in Green Lake has been improving since 1975 whereas the color has declined, but the spotty nature of data makes it difficult to draw other conclusions. It is generally difficult to assess the overall health of Ellsworth's lakes and ponds because there are either no data available (Leonard Lake; Little Duck, Wormwood, and Bog

[31] For the MDI Biological Laboratory educational programs already in place, see https://mdibl.org/in-the-news/research-teachers-data-literacy-students-test-well-water-for-arsenic/.

Ponds; Jesse Bog), only limited and out-of-date data (Upper Patten and Little Rocky Ponds), or incomplete and irregular data sets (Lower Patten Pond, Graham and Green Lakes). Except for Branch Lake, we currently lack a comprehensive approach to testing even Ellsworth's largest and most populated lakes, and this is especially problematic for Graham Lake, whose ecosystems are seriously threatened by practices discussed later in this section.[32]

Recommendation W-16: Extend regular and comprehensive testing of water quality, dissolved oxygen, temperature, and clarity to all Ellsworth lakes and ponds, with the goal of improving or maintaining levels recommended for the relevant type of water body.

Apart from Branch Lake's CBI and IPP, the Green Lake Association and Friends of Patten Pond have established IPP programs, and the recently formed Friends of Graham Lake has also started an IPP group. The intervention on Graham Lake is especially important because it is both large and comparatively shallow. Consequently, its comparatively warm water and large littoral zone make early detection of IAPs challenging. Except at Branch Lake, no organized system currently exists to ensure that CBI inspections are conducted and that stickers are required, but the systems at Branch Lake and other locations around the state can serve as models. The Lakes Environmental Association (in charge of CBI programs), Lake Stewards of Maine (which trains IPP volunteers), the newly formed Hancock County Lakes Association (which will address both IPPs and CBI efforts locally), and Maine DEP (which funds related grants) provide a network that could support development of a more comprehensive system.

Recommendation W-17: Support regular CBI and IPP programs for Ellsworth's lakes and ponds. These programs should be augmented by efforts to discourage or prevent the use of private ramps for boats not owned by the property owner and to limit or eliminate float plane landings.

The number of violent storms has increased significantly in Maine over the past 30 years, with Hancock County experiencing some of the most extreme weather and registering the

[32] For more information and data relating to Ellsworth lakes, go to www.lakesofmaine.org/search-results.html?DoWhat=&l=&t=&z=04605&m=. Information on this site was last updated in 2018 using 2017 data, but none of its data for Ellsworth lakes were complete even for 2017.

highest precipitation of any county on record for the past ten years.[33] This increases the severity of stormwater runoff and erosion that contributes to NPSP with elevated levels of phosphorus and a decline in water clarity. Just as at Branch Lake, developed lots, construction sites, and lake roadways without proper stormwater management are contributing to pollution problems, which will only intensify as the demand for desirable waterfront property drives further increases in development and vacation rentals.[34] Roofs, driveways, and lawns should drain stormwater into infiltration wells, swales, and gardens so that it soaks into the ground rather than running off into a lake or other water body. Septic systems are allowed to exist until they fail, and some older camps do not have septic systems.[35] Many waterfront property owners are not aware of the NPSP problem and its causes and solutions, and all they need is education and guidance in order to make changes. That is not true for all property owners or contractors, however. If hundreds of new homes are built around our lakes and waterways in the Union River watershed, NPSP will explode if we do not enforce existing codes and add new driveway and roof runoff codes for homes.

Although municipalities do maintain some roads around our lakes, most are maintained by private road associations and property owners. Many violate the state's sediment and erosion control regulations, and when year-round road use involves winter plowing and traffic during mud season, the situation becomes especially problematic. Most of these associations focus on making roads more passable for vehicles rather than minimizing runoff to stop NPSP running into the lake. Introducing culverts to divert water that might damage the road can create new brooks through the woods. This concentrates water flow instead of spreading it out to soak into the ground, and leads to large volumes of soil around tree roots being washed into lakes and tributaries—thereby destabilizing the very trees necessary for water absorption. Solutions to these problems need to be site-specific

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[33] National Oceanic and Atmospheric Administration, National Centers for Environmental Information, State Climate Summaries: Maine, https://statesummaries.ncics.org/chapter/me/.

[34] For photographic examples of problematic areas around Ellsworth lakes, see Online Support Materials at www.greenellsworth.org.

[35] For a potential model for ordinances that control NPSP more effectively, see Bridgton ordinance updates 3/5/2018, http://bridgtonmaine.org/wp-content/uploads/2017/09/Shoreland-Zoning-Ordinance.pdf.

and to involve sediment and pollution control best practices designed by the Soil and Water Conservation District or a professional engineer.

Recommendation W-18: Develop a three-pronged approach to minimizing NPSP in our lakes and ponds: (1) a regular program for educating property owners, contractors, and road associations regarding best management practices to control stormwater runoff; (2) proactive enforcement of existing ordinances; and (3) revision or introduction of additional ordinances to better control such things as road and driveway construction, roof drainage, and plumbing.

Recommendation W-19: Work toward the goal of having 10% of Ellsworth's lakefront properties LakeSmart-certified by 2024, and celebrate those property owners as models for others.

It must be acknowledged here, however, that inadequate staffing compromises the city's capacity to even enforce the regulations that are in place and conduct the kinds of inspections and testing necessary for the proactive protection of our water resources called for above. In 2008 Ellsworth cut code enforcement staffing from three to two—and then became one of the fastest growing cities in Maine to the present day. Those two code enforcement officers must do more than 1,000 inspections a year all over the city, with each new site generating several inspections during construction. It stands to reason that two people cannot do multiple new building inspections in the city core and keep on top of rural code infractions all over one of Maine's largest cities by land area. New regulations will need to be matched by the capacity to enforce both new and preexisting codes.

Recommendation W-20: Return staffing in the city's Code Enforcement Department to the equivalent of pre-2008 levels (three full-time positions). This could involve adding one staff member or contracting third-party inspectors (Hancock County Soil and Water Conservation District or an engineering firm), paid for through the prorated increase of permitting fees and allocation of a percentage of tax revenue from shorefront property.

Another factor in realizing the sustainability of our lakes and ponds will be communication and negotiation across lake associations and adjacent communities that

either have jurisdiction over part of the shorefront land around our lakes (e.g., Green Lake, partly in Dedham; Upper Patten Pond, partly in Orland) or entire lakes that drain directly into Ellsworth water bodies (Beech Hill Pond in Otis, Goose Pond and Harriman Pond in Dedham, Rocky Pond in Orland). Water and the associated problems of NPSP and IAPs do not respect official boundaries. Development and uninspected boats in another municipality could easily have a downstream impact in Ellsworth.

Recommendation W-21: Periodically convene a network of representatives from municipalities and lake and road associations within the Union River watershed to explore common issues and exchange best management practices, particularly with respect to reducing NPSP through improved road construction practices, shared equipment, and expertise.

Two other problems affect Ellsworth lakes. The first has to do with extreme fluctuations in the water levels of Ellsworth's two largest lakes, Graham and Green Lakes. Dam owners regulate the lake levels to store water to a height that will maximize revenue from power generation when the water is drawn down. Drawdowns are timed to coincide with peak power requirements and revenues. The effects on property owners and recreational users of the lakes, let alone on the lakes' freshwater ecology, are secondary considerations. Recently water levels on Graham Lake have fluctuated by as much as 11 feet (see Figure 1.1), leaving boats and docks that were afloat one day mired in mud the next. The erosion caused by this extreme ebb and flow results in turbidity that converts the upper Union River water (identified as some of the cleanest in the state) into lake water classified as impaired.

Figure 1.1: Graham Lake drawdown, summer 2018

The effects on fish and other aquatic life left high and dry due to sudden drawdowns, and the erosion of shoreline habitat for birds and other wildlife, are serious issues on several levels. Graham Lake is a good example of the type of large reservoirs with associated wetlands and peat that have been cited as producing as much CO_2 emissions as a fossil-fuel power plant.[36] The CO_2 comes from the decomposition of peat and other stored

[36] Jon Cartwright, "Hydroelectric Reservoir Emissions May Compare to Fossil Fuels," *Environmental Research Web*, 2016, www.environmentalresearchweb.org; Kevin Rose, "Lakes and Climate Change:

organic material in river sediments. This process is at work in Graham Lake's annual erosion of the peat islands, which also contributes to the turbidity of the water. Studies of the Union River between Graham and Leonard Lakes have also shown it to be impaired, apparently due to turbidity, embeddedness of the bottom,[37] dissolved oxygen levels that are noncompliant with state water quality standards, and high temperatures generated by the solar collector effect of Graham Lake.[38] Given that this turbidity flows onward to Leonard Lake and then along Ellsworth's tidal shoreline out to sea, Ellsworth needs to be mindful of the impact this turbidity has on such an extended swath of shorefront property and habitat. A 1996 University of Maine study clearly demonstrated the effects that lake water quality has on individual landowners as well as entire communities: for every 3-foot decline in water clarity, shorefront property values can decline as much as 10% to 20%.[39]

In March 2020, the DEP responded to Black Bear Hydro Partners' application for relicensing the Ellsworth and Graham Lake dams after analyzing water quality data submitted by the company. DEP concluded on scientific grounds that the data demonstrated that the company's operation of the dams resulted in lake water quality that did not meet legal standards, and that it was unlikely to in the future given the company's management plan. By refusing to grant Black Bear water quality certification because the dams "will violate applicable State water quality standards," the DEP may block the relicensing of the dams and put a stop to current practices. However, Black Bear has vowed to carry on with its relicensing application and has appealed the DEP decision. If

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Greenhouse Gases," Lake Scientist: The Online Source for Lake Science and Technology, 2018; www.lakescientist.com/lake-facts/lakes-climate-change/.

[37] Embeddedness of the bottom of a water body is a measure of the impact of silt, sand, or mud collecting and solidifying around and covering rocks to the extent that fish and other aquatic species lack shelter or spawning habitat.

[38] Mark Whiting, "Water Quality Survey of Maine Salmon Rivers: The 2015 Field Season, Downeast, the Union & the Aroostook Rivers," report for the Maine Department of Environmental Protection, 2016, www.academia.edu/27691884/; Mark Whiting, "A Turbidity Study for the Union River and a Discussion of Water Level Fluctuations in Graham Lake," report for Downeast Salmon Federation, Jan. 2017, www.researchgate.net/publication/324043134; Mark Whiting, "Turbidity and Water Level Fluctuations in Graham Lake and the Union River, Results from the 2017 Field Season," report for Downeast Salmon Federation, Jan. 2018, www.researchgate.net/publication/324042905.

[39] Holly J. Michael, Kevin J. Boyle, and Roy Bouchard, "Water Quality Affects Property Prices: A Case Study of Selected Maine Lakes," Maine Agricultural and Forest Experiment Station Miscellaneous Reports 398 (1996), https://digitalcommons.library.umaine.edu/cgi/viewcontent.cgi?article=1003&context=aes_miscreports.

relicensing fails, then Black Bear could apply for a new license with a management plan that could achieve certification, or if the dams are decommissioned they could be purchased with the intention of creating a plan for improved environmental and recreational benefits from Graham Lake through to the downtown Ellsworth waterfront. With Green Lake dam now under consideration for relicensing, similar attention to data relating to water quality standards will be important in that context as well.

Recommendation W-22: Require whoever owns the Green Lake, Graham Lake, and Ellsworth dams to limit the annual variation in lake water elevation to no more than 4 vertical feet and adhere to practices that will enable Green, Graham, and Leonard Lakes to comply with Maine water quality standards and achieve improved environmental and recreational benefits.

Recommendation W-23: Request that the DEP establish clear, numerical standards for turbidity, and raise expectations for water quality when issuing water quality certificates for the renewal of dams.

Recommendation W-24: Undertake independent, periodic water quality checks of all impoundments created by dams on the Union River, to monitor and enforce water quality standards.

The second problem that affects all of the Union River watershed, not just its lakes, is that none of Ellsworth's dams on Leonard, Green, and Graham lakes provide for fish to travel up- and downstream. The Union River is the largest river in Maine without provision for volitional fish passage. Passamaquoddy and Penobscot histories bear witness to the abundance of salmon, shad, and alewives in the Union River when it was free-flowing. By 1867, small dams constructed by settlers led to studies and recommendations for fishways and fish stocking to restore and maintain the river's previous abundance. Similar petitions and plans continued into the twentieth century, with city government explicitly requesting a fishway for sea-run fish in 1919 after the big Leonard Lake dam was built.[40] Today all other rivers in the state provide for timely fish

[40] Maine Department of Inland Fisheries and Game, "First Report of the Commissioners of Fisheries of the State of Maine, 1867" (1868), *Inland Fisheries and Wildlife Documents* 24, https://digitalmaine.com/ifw_docs/24; Maine Department of Inland Fisheries and Game, "Second Report of

passage except the Union River, which as a salmon river fails to comply with the Endangered Species Act and the Atlantic States Marine Fisheries Commission requirements for river herring.

Apart from limiting the annual, shameful waste of fish going to their deaths in dam turbines, fishways would restore the ecosystems of our lakes and improve recreational and commercial fisheries. While the current estimated run of 600,000 alewives provides revenue to the city and individuals, the local demand for these fish as lobster bait means that the estimated potential run of 4 to 7 million would represent a significant increase in revenue and provide an important service to the lobster fishery. In addition to restoring the aquatic ecosystems in our lakes, adequate fish passage would also benefit fish in the Gulf of Maine that have historically composed an important part of Maine diets. Declining access to fodder fish such as alewives has led to a decline in fish such as cod, haddock, and halibut, which has affected what we eat as well as livelihoods.

Recommendation W-25: Advocate for the construction of safe and effective up- and downstream fish passage on all Union River dams within three to five years of federal relicensing, with immediate loss of certification if the fishways are not fully operational at the end of five years.

A final challenge for the ecosystems in our lakes derives from Maine's dubious distinction of having the worst mercury contamination in North America, and Hancock County's distinction as having the worst in Maine. This is seen in contaminated soils and in mercury bioaccumulation in wildlife. Freshwater fish in Maine are not considered to be safe for consumption by women and children, and even adult men are advised to eat only one fish meal per month.[41] Seals in Maine have more toxic contamination in their bodies

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the Commissioners of Fisheries of the State of Maine, 1868" (1869), *Inland Fisheries and Wildlife Documents* 35, https://digitalmaine.com/ifw_docs/35; "Fishways for Union River," *Bar Harbor Record,* Apr. 20, 1898; public hearing regarding the City of Ellsworth's petition for construction of a fishway on the Ellsworth dam, *Ellsworth American*, July 30, 1919, p. 1, https://digitalmaine.com/cgi/viewcontent.cgi?article=5360&context=ellsworth_american.

[41] www.maine.gov/dhhs/mecdc/environmental-health/eohp/fish/documents/meffguide.pdf.

than California sea lions.[42] Contamination from chemical drift originates outside Maine in the downstream pollution plume from Midwest industrial plants, especially coal-fired power plants. The effects of acid rain may be gradually declining due to the reduced use of coal, but dirty air due to mercury, lead, dioxin, and PCBs continues to be a problem. There may be little that Mainers can do directly to alter their position as victims in this situation, but we should be in a particularly strong position to speak to the need to reduce our use of fossil fuels, as addressed in Chapter 4 of this plan.

D. A Revitalized Union River Waterfront and Watershed

There is a close parallel between the many Ellsworth citizens who spoke passionately about the Union River in green planning events and the alewives that return every year to the base of the Ellsworth dam and find themselves blocked from the ecosystem beyond it. Both are determined to gain access to the river and its tributaries, and in many ways the objectives of the citizens are closely intertwined with the futures of native fish stocks.

Although citizens have repeatedly requested greater access to the downtown waterfront, it remains largely inaccessible and uninviting despite its tremendous potential. Except at Harbor Park and the tip of Indian Point, industrial and commercial buildings and heavy equipment compromise or block altogether most views of and physical access to the river from Water Street. Lines of vehicles must stop for commercial trucks backing into and out of traffic and must navigate around the few pedestrians who dare to negotiate the poorly delineated walking areas on the river side. Neither this busy corridor, visual cues from the Union River bridge, or signage inspire pedestrians or vehicles to veer off Route 1 for the short journey to Harbor Park. Apart from Harbor Park and the River Walk behind the library, direct downtown access to the river for walking, fishing, kayaking, and wildlife watching is nonexistent. At the same time, residents are cut off from what has been called the "heart of the community"—its heritage and the living history embodied in the remains of riverfront facilities from a time when the river was at the center of a busy shipping hub.

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[42] Peter Ralston, "How Are Seals, as Top Predators, Impacted by Toxic Contaminants in Casco Bay and the Gulf of Maine?" Maine Environmental Research Institute Report, http://muskie.usm.maine.edu/cascobay/pdfs/Toxics%20Chapter%207.pdf.

Ellsworth's waterfront does indeed remain a working waterfront, but none of the businesses currently along Water Street actually make use of the river. On the opposite shore, the Union River Lobster Pot provides a glimpse of an alternative "working waterfront," where "Ellsworth's only waterfront restaurant" attracts customers by giving them access to and from the river via its boat dock. Some of the current Water Street businesses, especially those located in a flood plain, have the potential to spill oil or other chemicals into the river. The stumbling block to implementing the 2002 Waterfront Master Plan, as well as the vision articulated in the 2004 Comprehensive Plan, has always been the cost, particularly for relocating existing waterfront businesses and for acquiring property or easements.

As outlined in the Waterfront Master Plan, however, the benefits of renovating the waterfront far outweigh the costs. The project could catalyze a rejuvenation of the downtown area and the city itself, while also triggering substantial external funding sources and bringing additional wealth and employment to the community. The first step in committing to the project would be rezoning Water Street—something that would cost nothing but would ensure that any future development would be in line with the changes envisioned in the plan. The reality is that doing nothing also has a price tag. With respect to Ellsworth's waterfront, doing nothing will actually cost the city dearly in the long term. Serious shoreline erosion above and below the bridge, the effects of sea level rise, and silting of the river will all cost the city more and more the longer it delays in addressing these problems, whereas refurbishing the waterfront will provide a context for bundling these issues together in a more comprehensive project that can attract the necessary funding. An inexpensive starting point for revising and implementing the Waterfront Master Plan would be to examine the potential impacts of projected sea level rise on the community and to incorporate mitigation into the plan. Sea levels in our coastal area are rising at an accelerated rate; while it took 52 years for seas to rise 6 inches to 2016 levels, the rate of increase since 2017 suggests that it will take at most 16 years for seas to rise another 6 inches.[43] Clearly, any efforts to create public access,

[43] Our work has been greatly informed by a 2018 study by College of the Atlantic land-use students in support of this plan. They undertook extensive consideration of the various factors that could be potentially addressed by waterfront revitalization, including the impact of sea level rise and stormwater, and offered an

preserve shorefront habitat, and revision development along Ellsworth's waterfront that do not address the realities of sea level rise—as magnified by king tides and 100-year storms—will be unsustainable.

Recommendation W-26: Update and revise the 2002 Waterfront Master Plan, prioritizing public access to the length of the waterfront and restoration of shorefront habitat and green infrastructure, to minimize the effects of stormwater runoff and help mitigate the effects of erosion and sea level rise.

Recommendation W-27: Preliminary to undertaking a vulnerability assessment, invite the Island Institute to organize a public forum or workshop on the eventual effects of sea level rise in Ellsworth and on potential approaches to mitigating the combined effects of sea level rise and stormwater through waterfront revitalization and other mechanisms.

Recommendation W-28: Begin phased implementation of the revised Waterfront Master Plan, starting with rezoning the downtown waterfront to eliminate heavy industrial use.

As noted earlier (see Section IV.D), even without a revised waterfront plan in place, city and citizen initiatives are already evolving to achieve some of the community's aspirations, but without an overall plan in place and a shared sense of direction across the various initiatives, efforts may lack the coordination and support to realize our citizens' larger vision for the waterfront. Bringing together the various groups working toward these initiatives may make it more possible to realize the larger vision.

Recommendation W-29: Coordinate current efforts to create public access to the river and a river walk/urban hike from Harbor Park to the Union River bridge and from there behind the library to Central Street.

Recommendation W-30: Support the Museum in the Streets project so that it will profile the history of the Union River and engage the public in understanding its importance in the context of other historic sites in the city.

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outline for a related vulnerability assessment: https://drive.google.com/file/d/18-k2Sxyypa31AfWAyARmSUA9We5HpeXe/view, p. 42.

There is significant potential for rebranding downtown Ellsworth to better emphasize the river's current and historic importance to our citizens' sense of place. Several organizations could partner on initiatives to further this objective, among them Heart of Ellsworth, the city, Frenchman Bay Conservancy, Downeast Salmon Federation, the Ellsworth Historical Society, and the Historic Preservation Commission.

Recommendation W-31: Organize a community rebranding effort to reposition the Union River as central to the public identity and profile of the city. This would include exploration of educational initiatives within the schools and the general public to increase understanding of the river's history and ecology and reintroduction of an annual celebration of the river, similar to the Water Carnival held in the city in the early twentieth century.

Recommendation W-32: Seek official designation of the downtown riverfront as an historic district (from Indian Point to the head of tide), to further acknowledge and promote the importance of the river and the waterfront in Ellsworth's evolution as a city.

Recommendation W-33: Seek official designation of the Union River as an historic corridor that has had major environmental, social, cultural, and economic significance in eastern Maine, from the times of indigenous peoples through that of early settlers to the present day.

If we profile the significance of the river and improve access to it, then we must also address the quality of the habitat it offers for both people and wildlife. The virtue of access to the river presumes that it offers something the public wants to see and engage with. Healthy aquatic and shoreline habitats attract people, fish, and other wildlife, but is that what the Union River currently offers? Because of the river's history as an open sewer, most longtime residents would not think of swimming in it. Turbidity due to Graham Lake dam drawdowns and mangled fish parts floating down the river because of dam turbines further perpetuate the river's dirty image.[44]

[44] Maxwell Hauptman, "Fish Kill Observed at Union River Dam," *Ellsworth American*, Aug. 2, 2018. The mangling of alewives is particularly ironic given the local shortage of bait fish; see "Bait Shortage Puts Squeeze on Maine's Lobstering Fleet," *Mainebiz*, July 2, 2018,

Although the dumping of raw sewage into the river stopped some time ago, we continue to disregard the integrity of the river's ecosystem in other ways. High water levels caused by snowmelts, dam malfunctions, and uncontrolled stormwater and other runoff (particularly from paved surfaces) are causing serious shoreline erosion—something made even more problematic near sites of old buried chemicals above and below the Leonard Lake dam, which leach oil and other toxic substances into the water. Contrary to the law, snow, salt, and sand are dumped at the river's edge, killing trees and other vegetation between the dump and the shore and allowing the snowmelt to run into the river without any silt barrier.[45] Stormwater rolls down the streets carrying chemicals, silt, and gravel—sometimes going into the river directly and sometimes via old sewer pipes at various "scenic" points, including next to the boat launch at Harbor Park. (For related matters concerning Card Brook, see the next section, "Upgraded Natural and Built Stormwater Infrastructure.")

Recommendation W-34: Survey the stormwater system and erosion caused by uncontrolled stormwater runoff below the Ellsworth dam, make it a priority to correct runoff problems within the city's control (including snow dumps at the water's edge), and require other offending property owners to amend deficiencies within a reasonable period of time.

Recommendation W-35: Clean up toxic chemical sites along the river both above and below the head of tide.

Recommendation W-36: Once the turbidity, runoff, and stormwater issues along the downtown waterfront have been addressed, dredge the river channel to reduce sediment buildup.

The quality of the aquatic and shoreline ecosystems along Ellsworth's waterfront will also depend on what happens farther upstream. For instance, with more than 75 crossings, barriers, or potential barriers across the Union River and its tributaries, there is the

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http://m.mainebiz.biz/article/20180702/NEWS0101/180709998/bait-shortage-puts-squeeze-on-maine%E2%80%99s-lobstering-fleet.

[45] See Clean Water Act, Chapter 573 Snow Dumps …; www.epa.gov/sites/production/files/2014-12/documents/mewqs-cmr-573.pdf.

potential for poorly built or maintained crossings to contribute to NPSP or to compromise fish passage for species such as brook trout and sea-run fish.[46] Given the importance of the river and its waterfront to the city, Ellsworth should take a leadership role in organizing a Union River watershed survey and updating it every ten years. Especially in the context of changing circumstances around the Ellsworth Hydroelectric Project, such a survey should lay the foundation for a watershed management plan intended to restore and preserve the river's ecosystems. Surveys and ongoing monitoring in the context of a management plan can be supported by programs such as Maine Audubon's StreamSmart program, which can train individuals engaged in road construction for municipalities and road associations as well as volunteer citizen scientists.[47]

Recommendation W-37: Undertake a Union River watershed survey (including attention to dams and other crossings or barriers), supported by trained and supervised volunteer citizen scientists, and regularly update this survey every ten years.

Recommendation W-38: Drawing on a range of data in addition to the watershed survey, create a Union River watershed management plan that identifies overall goals and objectives for the watershed, areas currently requiring improvement, responsible parties for correcting any problems, and potential funding sources for private and public improvements. If trained citizen scientists are engaged in the ongoing management plan, their work and training can more broadly educate the public regarding best practices.

Of particular interest in the context of a watershed management plan are the ten dams in the watershed, most of which are more than 100 years old. With $110,000 expended annually, Maine is in the bottom five states for dam safety expenditures, and with 1.5 full-time equivalent staff it ranks 41st in the United States for employees devoted to dam safety. Overall, the state's annual budget works out to about $44.42 per Maine dam, or $1,476.56 per high-hazard dam. Three dams in the city (Branch Lake, Ellsworth, and Graham Lake) are classified as "high hazard." The relicensing process currently underway for the Ellsworth, Graham Lake, and now Green Lake dams makes some

[46] https://webapps2.cgis-solutions.com/MaineStreamViewer/.
[47] The statewide StreamSmart program has been set up to provide training and guidance on best practices for the construction of stream crossings. See www.maineaudubon.org/projects/stream-smart.

information public, but for these and other dams, up-to-date data are generally not available, despite requirements for regular inspections by the state. Even basic information such as the date of most recent dam inspections remains confidential, but because private property is at risk with high- or significant-hazard dams (posing risk for loss of life or property or environmental damage in the event of failure), this information should be public knowledge. For instance, given that the Ellsworth dam is well over 100 years old and a structural deficiency could result in loss of life as well as extensive property and environmental devastation in the downtown, it is not unreasonable for the city to want to know when regular independent, structural inspections have been carried out and what the results were. The number of increasingly violent storms in the area, and the fact that some years ago Black Bear Hydro Partners rendered the flood gates beneath that dam inoperable, in fact make access to inspection results essential.

Recommendation W-39: Request that all dams within the Union River watershed receive a state inspection, with any necessary repairs brought to the owner's attention.

Recommendation W-40: Post any publicly available data relating to Union River watershed dams on the Green Ellsworth website.

Recommendation W-41: Change current state legislation to make both the dates and the results of dam inspections publicly and regularly available.

E. Upgraded Natural and Built Stormwater Infrastructure

Card Brook and its associated wetlands are an important but undervalued star in Ellsworth's constellation of water resources. The wetlands constitute not only critical bird and other wildlife habitat but also natural stormwater infrastructure that demands almost no maintenance and in fact functions most effectively without human intervention. The wetlands act like a sponge to absorb water and slowly process and release it while recharging the groundwater. Ellsworth has a long way to go, however, in adequately valuing this natural asset and using it as a model to mitigate stormwater challenges. The 2004 Comprehensive Plan recommended conserving the brook as a corridor from the High Street crossing to the river, but this has not been done. In the context of green

planning, the wetlands and the brook have assumed such importance that we recommend a much broader conservation effort.

Recommendation W-42: Formally conserve Card Brook and its wetlands, including a public-access corridor along the brook from the High Street crossing to the river and the wooded area behind Maine Coast Mall between Birdsacre and the brook.

Card Brook has been identified by the DEP as an urban impaired stream (non-attaining/polluted) from High Street to the Union River.[48] The city has set aside $75,000 from the Natural Resources Damages Compensation Agreement for addressing this issue, but it needs to apply to the DEP for further funding to do a watershed survey to determine the cause of the problem and potential approaches to mitigation.[49] This survey would also provide the foundation for a Card Brook watershed management plan, to protect against further problems once the brook is brought up to water quality standards.

Recommendation W-43: Undertake a Card Brook watershed survey and develop a restoration and management plan to determine the cause of the brook's nonconforming status, measures for rectifying the situation, and a proposal for implementing those measures as well as ongoing maintenance to avoid further impairment.

It would appear that one major cause of the problem at Card Brook has to do with the combination of soil composition, failure of the built infrastructure to adequately adapt to the realities of topography, and the surrounding density of impervious surfaces (e.g., expansive roofs, paved parking lots, roadways, walkways) without adequate green

[48] Department of Environmental Protection, 2010. Card Brook TMDL Assessment Summary. Maine DEP, summary pages for the Impervious cover TMDL, www.maine.gov/dep/water/monitoring/tmdl/2012/Appendix_7_Card%20Brook.pdf. There is another potentially related violation of a city agreement with the DEP which required all of the Knowlton Park footprint to remain as grassed area to mitigate stormwater runoff. The city must preserve an additional 7,000 square feet of grassed area in the same watershed to substitute for the current impervious surfaces that were introduced into the park design. It has been suggested that addressing the Card Brook deficiency could also address the Knowlton Park issue.

[49] As compensation for the irretrievable loss of groundwater resources, in 2013 the DEP provided $500,000 to the City of Ellsworth for Enviro-Grants to help protect drinking water resources from pollution. Approximately $300,000 of that money remains available for projects.

infrastructure to absorb runoff.[50] In particular, road construction techniques and materials exacerbate runoff by allowing stormwater to run directly out to sea rather than attempting to retain it. According to research from the Center for Watershed Protection, streams are impaired when impervious surfaces cover just 10% of a watershed. Streams in watersheds where impervious surfaces cover 25% of the area cannot support aquatic life.[51] If in the case of Card Brook you add increasing extremes of precipitation to the challenge created by impervious surfaces, the resulting shoreline erosion multiples the challenge. A 2018 study noted that since 1996 the number of violent storms with extreme precipitation has increased in Maine by 53%.[52] A summer visit to Card Brook's Water Street crossing during a violent storm revealed a rolling river of mud depositing a layer of sediment that was clearly discernible all along the inlet at low tide. A spring visit to the same crossing during another violent storm revealed a raging torrent emptying plastics and other debris directly into the river. The recent upgrade of the culvert at the Water Street crossing is a valuable step in the right direction, but much work remains to be done upstream.

Beyond NPSP and shoreline erosion, that work must also address the continuing accumulation of trash both up- and downstream of High Street. Success in correcting the problems related to Card Brook will require a major shift in public behavior—combined with implementing and enforcing regulations to support that shift. Volunteers retrieve pounds of trash from the brook during the annual spring cleanup, but tributaries such as this still contribute to the high levels of plastic and other pollutants reported in Blue Hill Bay by organizations such as the Shaw Institute.[53]

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[50] The 2018 study undertaken by land-use-planning students at College of the Atlantic in support of our green planning effort placed much emphasis on the causes and potential approaches to remediation of Card Brook pollution. Their findings can be accessed at https://drive.google.com/file/d/18-k2Sxyypa31AfWAyARmSUA9We5HpeXe/view, pp. 33-36, 88.

[51] Prince William Conservation Alliance, www.pwconserve.org/issues/watersheds/stormwater/impervious.htm.

[52] www.sciencedaily.com/releases/2018/07/180731164106.htm; Huanping Huang, Jonathan M. Winter, Erich C. Osterberg, "Mechanisms of Abrupt Extreme Precipitation Change Over the Northeastern United States," *Journal of Geophysical Research: Atmospheres*, 2018; NOAA, National Centers for Environmental Information, State Climate Summaries: Maine; https://statesummaries.ncics.org/chapter/me/.

[53] www.shawinstitute.org/focus/plastics-and-microplastics.

Recommendation W-44: Implement a Card Brook restoration and watershed management plan, drawing on, among other things, volunteer cleanups, educational materials, and regulations and enforcement. The plan should involve reconstruction of the crossing and roadway around the brook and education of abutting property owners regarding the need to eliminate trash and stormwater runoff by reducing impervious surfaces and introducing more green infrastructure.

Natural wetlands like those associated with Card Brook moderate the strain on the city's dilapidated stormwater infrastructure by retaining and filtering stormwater, and human-made "wetlands" can perform a similar service for the community as well. Depressed rain gardens and bioswales (not raised green islands along roads and in parking lots, which repel rather than absorb water), tree plantings (using Silva Cells[54] to retain water), and green roofs can curb runoff along Card Brook and in many other locations in the city. Road surfaces, sidewalks, and parking areas can behave similarly by making porous approaches to pavement the norm rather than the exception (see Online Support Materials for more details regarding these types of green infrastructures). As acknowledged by its staff, the city "cannot continue to grow and develop without addressing existing storm-water issues through the proper maintenance, upgrade, and overall management of the existing stormwater system."[55] Without question, the city's conventional stormwater infrastructure must be upgraded, and the system will be more effective and less expensive if it incorporates green infrastructure.

Recommendation W-45: Develop a phased long-term plan for upgrading Ellsworth's stormwater infrastructure, with the overall objective of retaining as much water as

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[54] Silva Cells are a common technology for supporting urban tree plantings that maximize the retention of stormwater. The company describes them as "a modular suspended pavement system that uses soil volumes to support large tree growth and provide powerful on-site stormwater management through…bioretention"; www.deeproot.com/products/silva-cell.html.

[55] The city worked with the University of Maine Sea Grant program to begin assessing stormwater management, flooding, and erosion issues, as described at https://seagrant.umaine.edu/extension/coastal-community-adaptation-strategies-in-a-changing-climate/. The report on their progress with stormwater management and planning is available in full at www.maine.gov/dacf/municipalplanning/casestudies/docs/52_%20Ellsworth%20FY%2015%20CCG%20Stormwater%20Mngmt%20&%20Adaptation%20Plan.pdf.

possible rather than flushing stormwater, chemicals, and sediment into the river as quickly as possible.

Recommendation W-46: Implement the plan for upgrading Ellsworth's stormwater infrastructure, including replacing undersized culverts and pipes and using green infrastructure to decrease the pressure on the human-made system. Greening the system should also reduce the costs for bringing it up to a level that can accommodate the effects of increasingly extreme weather.

Much attention has been paid here to Card Brook, partly because it rose to the attention of the DEP and partly because of its visibility in the community, with crossings on two major arteries—High Street and Water Street. However, this raises questions about the situation with other streams in Ellsworth—most of which do not have the high public profile of Card Brook and have not risen to the attention of the DEP. Ellsworth has experienced considerable residential and commercial development in recent years, and with that has come further proliferation of impervious surfaces.[56] City ordinances contain few restrictions on the extent of impervious surfaces and only limited requirements for the collection and retention of stormwater to maintain groundwater recharge and filtering. Older areas (e.g., Main and State Streets) where roads become rivers rushing to the waterfront (or the basements of historic properties) in a downpour can be understood in the context of aging stormwater infrastructure. However, the current practice of approving large new developments with uncontrolled runoff directly into streets (e.g., Washington Street), despite inadequate catchment capacity, needs to stop. Such practices lead directly to pollution and silting of the river, both of which result in environmental degradation and costly remediation.

Recommendation W-47: Reduce the level of stormwater runoff from existing impervious surfaces and limit future construction of impervious surfaces unless adequate measures are in place to retain and filter runoff. Measures should address both large and small developments and should include:

[56] Ellsworth is frequently cited as one of the fastest-growing cities in Maine. One site lists it as the second fastest growing city in Maine for 2020: www.homesnacks.net/fastest-growing-cities-in-maine-127080/.

- Education of the public and contractors regarding best stormwater management practices
- Incentives and supports for commercial and residential property owners to reduce existing impervious surfaces or introduce green infrastructure
- An ordinance to limit new impervious surfaces and their effects through Low Impact Development (LID) and to reduce existing impervious surfaces by requiring redeveloped properties to replace impervious surfaces through LID[57]
- Enforcement of regulations by code enforcement personnel and volunteers focused, in particular, on properties within 400 feet of any lake or stream
- Fines for failure to comply with regulations

This program could have a transitional time line with an initial, educational stage in which LID is optional. Because LID is generally cheaper, even in the short run, and more attractive and functional in the long run, it can often "sell" itself. Through the transitional stage, both developers and the Planning Board can become LID-literate before LID becomes mandatory.

F. Access to the Water

Despite the current points of public access to the Union River watershed, not all Ellsworth lakes have public access, and on the lakes that do have access, some launch sites are in need of attention—especially the Leonard Lake launch, which was targeted for improvement in the 2004 Comprehensive Plan. In our green planning consultations, both longtime and recently established residents demanded more access to Ellsworth's water resources, especially the downtown waterfront and Leonard Lake. In particular, further access points on Leonard Lake should be developed, given the shorefront property the city owns there. Citizens also emphasized the need for access to shorefront trails and walkways for exercise and ease of travel by both people and wildlife. Most frequently

[57] For substantial resources and guidance on LID, see EPA, "Urban Run-off: Low Impact Development," at www.epa.gov/nps/lid. See also specific articles relating to the integration of green infrastructure and LID practices, such as Kim A. Chapman, "LID Blended with Ecology in Urban College Campus," *Land and Water*, Nov./Dec. 2014, www.landandwater.com.

cited was a circular route linking the downtown waterfront with Ellsworth Falls via a footbridge between the Shore Road and Infant Street.

Recommendation W-48: Provide adequate public access to our lakes and ponds and improve signage and maintenance of existing boat launches and other access sites, beginning with improved access to Leonard Lake, especially at the city-owned parcels below the Elementary Middle School and at the mouth of Branch Lake Stream (former site of the Branch Lake Stream dam, removed in 2019).

Recommendation W-49: Seek funding for the phased implementation of a shorefront bike and pedestrian loop extending from downtown around both sides of Leonard Lake via a footbridge connecting from the Shore Road in Ellsworth Falls to Infant Street.

G. Enhanced Community Engagement and Capacity

Although the strong public engagement and support for protecting and enhancing our water resources are valuable assets, they do present a few challenges. One is the need for education and coordination to make this level of engagement as effective and enduring as it can be.

Recommendation W-50: Develop and train a group of volunteer citizen scientists to support watershed surveys every ten years and test and inspect our lakes on a regularly established schedule. An initial goal for this group should be to organize LakeSmart property inspections in support of the earlier recommendation (see W-19) that 10% of Ellsworth waterfront properties become LakeSmart-certified by 2024.

Another challenge has to do with potential disengagement if the city, green planners, and others do not move forward swiftly enough on recommendations, failing even to maintain let alone accelerate the pace of progress. This is especially true with respect to the waterfront revitalization. Having argued for this project for more than 20 years, some citizens see the Green Plan recommendations as the best and last chance for implementation. In arriving at our recommended actions, we have mobilized a wide range of volunteers as well as local nonprofits and their staff, who committed countless hours over a three-year period to committee work, research, writing, and related projects. This process has catalyzed new partnerships in the community and has initiated a variety of

relationships with organizations at the county, state, and national levels—many of which are expected to evolve further over the next ten years, as reflected in the summary list of recommendations and responsible parties (see the appendices).

Having raised more than $200,000 to support our planning and small projects, Frenchman Bay Conservancy and the Ellsworth Garden Club have just begun the process of capacity building. That process needs to continue with enhanced city involvement if our community is to maintain momentum and take advantage of the increasing amount of funding that is available from government and foundation sources to support the shift to more sustainable management of our water resources and large projects that might otherwise seem out of reach.[58] Given the recent and anticipated instability and shortages in staffing (e.g., in Code Enforcement, Planning, and the City Manager position), the city's capacity to build on this momentum is a concern. Many of the recommendations in this chapter are predicated on accessing external funding sources, but several of the largest sources require an application from the city—and the eligibility and success of such applications depend on timely completion of previous grant projects and an up-to-date comprehensive plan—things that are currently a problem.

With the city's dependency on the Branch Lake water supply and on shorefront property tax for more than one-third of its tax revenue, the city's long-term interests are deeply invested in the recommendations in this chapter, which arise out of our citizens' core priorities of access to the water and healthy aquatic ecosystems. Green planning participants do not expect the city to single-handedly fund these recommendations. We want to work with the city as a partner. This can mean nonprofits and volunteers bringing their time and expertise to the table to augment the city's limited funds and staffing. Reciprocally, the City Council and city manager will need to prioritize staff time for grant applications and completion of grant projects while setting aside financial resources to leverage external funding, with an eye to multiplying tax dollars and alleviating the significant deferred debt represented by the current realities such as the state of the stormwater system and challenges with delivery of the public water supply. Even with

[58] Branch Lake Association is currently in the process of raising $18,000, most of which it already has, thanks to money from the city's Enviro-Grant program.

grant applications initiated by our partner nonprofits, in the competitive world of grant applications and fundraising, funders must see that city government has "skin in the game" through in-kind staff time and cash commitments. Currently, the city's budgeting process appears not to routinely incorporate an expectation that department heads will use a component of their annual budget as leverage for multiplying their budgets through grant allocations, but the best use of taxpayer dollars requires that the city position itself to take advantage of these opportunities.

By working with nonprofit partners, the city can access a wider range of funding opportunities. For such efforts to be effective, they must be coordinated and strategic to ensure that the right partners are matched with the funding source they can best leverage. The level of success with this kind of collaboration will depend on coordinating a time line that ensures the available capacity to apply for, manage, and match grant funding on the part of both the city and nonprofits. Coordination will also be necessary to ensure timely completion of projects in order to maximize funding from specific sources that require completion of one project prior to the submission of another application.

Recommendation W-51: Prioritize time and capacity for city staff to apply for and manage grant projects and to form strategic partnerships with nonprofits concerned with implementing water-related Green Plan recommendations, in order to maximize our capacity as a community to realize the sustainability objectives for our water resources.

Recommendation W-52: Annually set aside money from shorefront tax revenue and fisheries income to create a fund for providing seed grants to lake associations, nonprofits, and other organizations for conservation and water improvement projects, as well as matching funds for larger projects such as waterfront renewal, sea level rise mitigation, and dam-related issues.

VI. Conclusion

The specific recommendations outlined here compose an action plan for Ellsworth's water resources over the next ten years. Overall, the proposed actions navigate a challenging balance between providing residential, recreational, and commercial access for people and preserving, protecting, and enhancing our aquatic and shoreline

ecosystems to sustain all living things that depend on them. The input we received from green planning participants made it clear that many of our citizens see these objectives as complementary rather than opposing. What is good for our ecosystems also makes them more attractive and beneficial for people. Consequently, our action plan seeks to integrate human and natural systems in such a way as to make human access and use of our water resources more sustainably consistent with the health and quality of our aquatic ecosystems—and the other natural and human systems discussed elsewhere in this plan.

Apart from specific recommended actions, our plan for realizing our vision for Ellsworth's water resources is grounded in basic principles and objectives meant to frame an overall water management program. Our framework is meant to support a fluid and integrated approach that responds to regular assessment of progress and makes adjustments based on the best data and science available. With enhanced and extended testing and full watershed surveys, for instance, discoveries may emerge that will necessitate adjustments to recommended actions and new priorities altogether. While measuring our success in achieving the goal and objectives laid out here will depend on quantifiable data and specific actions taken, it will also depend on our capacity to embrace other ways of achieving our vision and less quantifiable progress in shifting the public's mindset and behavior to embrace their roles as caretakers of our river, lakes, streams, and aquifers. Perhaps one of the most important measures of success will be the expansion of the strong volunteer investment reflected in the Green Plan subcommittee work, long-standing organizations such as the Branch Lake Association, and local IPP teams. Increasing the numbers of citizen stewards committed to realizing our Green Plan vision will be one of our most important mechanisms for ensuring a rich legacy of water resources for the future.

CHAPTER 2

LAND

I. Our Goal and Vision for This Resource

This chapter addresses how the residents, businesses, and municipal government in the City of Ellsworth use forests, fields, wetlands, and other open space, and how we need to rethink our approach so that we may better align development with our residents' vision for a more sustainable community.

Our goal is to strengthen and promote sustainable land use in Ellsworth. This will involve formally conserved lands and land enrolled in programs such as Tree Growth, Open Space, and Farmland[59]; designated parks, recreational areas, and cemeteries; other landscaped and natural areas, both public and private; green trails, corridors, and urban tree canopies; and privately owned areas historically used by citizens as "commons." Recognizing that it is essential to integrate our built environment and our natural environment, we envision new approaches to leadership and land management that will empower citizens to become actively engaged in preserving and caring for our public and private green spaces. Furthermore, we believe that the management and evolution of Ellsworth's public green spaces should model the excellent environmental stewardship with which all commercial and residential property owners should approach the lands they manage.

Our shared community vision is for an Ellsworth in which the conservation of green spaces is central to our future development, our quality of life, and the biodiversity of the environment.

II. Why We Need to Protect and Care for the Land

A. Public Health and Well-Being

[59] Although it is an important green planning consideration regarding land use, farmland is not specifically addressed in this chapter. It is addressed in detail in Chapter 3, Food and Farming.

During the COVID-19 crisis, our local green spaces experienced such a substantial increase in public use that the organizations managing them had to issue guidelines on avoiding overcrowding. This phenomenon suggests an innate public perception of the health benefits afforded by green spaces—benefits further supported by scientific studies confirming that access to green spaces increases opportunities for healthy exercise, improves air and water quality, contributes to improved mental health, and decreases rates of obesity, heart disease, and respiratory disease.[60] Not surprisingly, there is a correlation between the health of the natural environment we live in and our own health. A converse effect derives from land-use policies and practices that allow sprawling development to consume large quantities of open space, increase our dependence on cars, and expand the extent of impervious surfaces, thereby threatening the quality of our water resources. That is why we recommend improved land-use policies that better reflect our citizens' needs and values.

B. Public Access

Today, many Ellsworth residents have the opportunity to enjoy a local trail, formal or informal, a short walk from their house. It may be an old woods road, a public path on the property of a willing neighbor, or a short jaunt from the road to a favorite hunting or fishing spot. Unfortunately, the open space that we all enjoy today is under threat. Properties change hands. Informal agreements that allow us to walk across private property today may not be honored by a future landowner. Waterfront land is often the first to be developed and closed to the public. When we lose access to the land, we also lose treasured places to fish and swim. Before those valued places are closed off or carved up and developed for other uses, we need to act to ensure public access for our

[60] Matthias Braubach et al., "Effects of Urban Green Space on Environmental Health, Equity and Resilience," in *Nature-Based Solutions to Climate Change Adaptation in Urban Areas,* ed. Nadja Kabisch et al. (Springer, 2017), pp 187–205; https://link.springer.com/chapter/10.1007/978-3-319-56091-5_11; Aaron van Dorn, "Urban Planning and Respiratory Health," *Lancet: Respiratory Medicine* 5.10 (Oct. 2017): 781–782, www.thelancet.com/journals/lanres/article/PIIS2213-2600(17)30340-5/fulltext; Matilda van den Bosch, "Parks, Big and Small Needed for Public Health," Faculty of Medicine: School of Population and Health, University of British Columbia, www.spph.ubc.ca/parks-big-and-small-needed-for-public-health/.

children and future generations. That is why we recommend that Ellsworth target 50% of its total land area for conservation.

C. Our Rural Way of Life and Economy

As paved surfaces proliferate and development creeps across the landscape and along our major access routes, we also lose essential wildlife habitat. We lose the land that has the capacity to feed us. We lose the forests and trees that are both working landscapes and buffers that help protect our lakes and public water supply. These are core features of our rural way of life, as well as critical factors in our community's recreational economy and appeal for new residents.

Maine has one of the fastest growing outdoor recreational economies in the United States. In 2019 it tied with Wyoming as fifth among the states benefitting from growth in this sector, with a 4.2% annual increase in value added to Maine's GDP and a 4.7% annual increase in employment, for a total of $1.4 billion paid in wages.[61] Given Ellsworth's location relative to Acadia National Park, greater attention to the city's forests and wildlife has the potential to considerably expand our citizens' share of that recreational economy. As part of making the city a place where people want to live, Ellsworth citizens want greater protection and care of our green spaces, and they want to see evidence of the priority we place on green spaces and good land use along the city's major access routes. With its exceptionally large land area, Ellsworth has a resource that distinguishes it from other communities. We need to use that resource wisely to preserve and emphasize the city's distinct character and to ensure our quality of life. That is why we recommend mechanisms to ensure that the recreational and economic values of working lands and traditional ways of life are preserved and respected.

D. Investments in Our Community

[61] Bureau of Economic Analysis, U.S. Department of Commerce, "Outdoor Recreation Satellite Account, US and States, 2019," released Nov. 10, 2020, www.bea.gov/data/special-topics/outdoor-recreation; www.snewsnet.com/news/bureau-of-economic-analysis-releases-2019-report. A 2017 economic impact study undertaken by the Outdoor Industry Foundation employed multiplier factors to report that the real impact of this industry in Maine amounts to $8.2 billion in spending per year and 76,000 jobs; "Outdoor Industry Bolsters Maine's Economy …," Outdoor Industry Foundation, July 26, 2017, https://outdoorindustry.org/press-release/outdoor-recreation-bolsters-maines-economy-8-2-billion-annually-consumers-spending-76000-jobs.

When we plant and care for trees and landscaping along our roadways and in local parks; when businesses and residents landscape their properties to attract pollinators and wildlife; when we conserve both large and small, historic and environmentally significant areas; when we create green links, trails, and connectors between our green spaces, we are investing in the future of our community. Investing in the land pays dividends in the form of services to the community as varied as inexpensive stormwater management, outdoor classrooms, pollinators for the food we eat, recreational facilities promoting wellness, and abundant clean drinking water. Maine forestland captures approximately 13 million metric tons of CO_2 emissions per year, or 75% of Maine's greenhouse gas emissions.[62] Ellsworth, with its large land area and substantial forested land and canopy, is fortunate to directly contribute to and benefit from this impact on air quality and temperatures. Protecting, caring for, and providing access to land can also be a catalyst for addressing larger community issues relating to health, education, justice, poverty, and hunger. Conserving our land is also a mechanism for conserving our community. That is why we recommend improving the care and management of our public green spaces and engaging our citizens more substantially in this process.

E. A Catalyst for Private Investment in the Public Good

Protecting and caring for the land is a catalyst for reconnecting people with place and nature—for fostering relationships that shift the perception that somehow people and communities are separate and independent from the natural world. At very practical levels, caring for land is a way that all individuals, families, and businesses can contribute to the public good. Individuals can contribute to the care of our public spaces; donors and sponsors can contribute to organizations that protect and care for green spaces; and anyone who owns a residential or commercial property can manage that property with the same concern for the resilience of nature as that embraced by land conservancies, garden clubs, and other environmental organizations. As observed by the internationally recognized ecologist Doug Tallamy, "Because more than 85 percent of the United States is privately owned, successful conservation efforts in the future will rely on

[62] Natural and Working Lands Group, Maine Climate Council, June 2020; www.maine.gov/future/sites/maine.gov.future/files/inline-files/NaturalWorkingLandsWG_FinalStrategyRecommendations_June2020.pdf.

effective conservation on private lands."[63] According to the Natural and Working Lands Group connected with the Maine Climate Council, "the vast majority of working and natural lands in Maine—93 percent—are also privately owned."[64] In Ellsworth, land that is city-owned and formally conserved through a land trust represents just a small fraction of the city's total land area.[65] Ultimately, then, what happens on privately owned property in Ellsworth will have a major impact on our capacity to realize our vision of a more sustainable community. If we want green corridors to benefit people and the environment and connect the many island patches of green in our community, "yardscapers" and other private property owners will be critical players in making it happen. That is why we recommend measures to encourage and support good stewardship by individual residents, businesses, and nonprofits.

F. A Place Where People Want to Live

Abundant green space is good for business, leisure, and life. Ask people why they live in Ellsworth, and the answer typically includes a strong connection to the natural world around and within the city. There are a decreasing number of places where people can enjoy a walkable downtown, with restaurants and bars and a thriving farmers' market, and be only a short distance from a park, a hiking trail, or places to hunt and fish. Ellsworth offers all of these amenities. Business people recognize the value of local green space when trying to attract and retain talented employees. Many families want to raise their kids in a place where there's still an "outdoors" where young people can play, guided by their own creativity and free of screen time and an overly structured schedule. Nature around us is refreshing. It is rejuvenating. If Ellsworth residents want a prosperous future that still includes green space, we need to act now to secure that future. That is why we recommend convening our citizens to determine what they value and want to protect across Ellsworth's landscape, in order align future land use with the city character they want to sustain.

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[63] Doug Tallamy, "Bringing Nature Home," www.bringingnaturehome.net.
[64] https://climatecouncil.maine.gov/strategies/lands.
[65] FB Environmental, *Build-Out Analysis: City of Ellsworth*, Frenchman Bay Conservancy, Apr. 2020, Figure 2, https://frenchmanbay.org/wp-content/uploads/2020/07/Ellsworth_Build-Out_Report_FINAL_7May2020-1.pdf.

III. Guiding Principles and Objectives

Ellsworth's residents have stated that the city needs to protect the remaining natural areas downtown and prevent sprawl in rural areas. People have clearly articulated these values throughout the green planning process, through the city's 2015 Visioning Project, and even earlier, through planning exercises leading up to the 2004 Comprehensive Plan and the 2002 Waterfront Master Plan. This dual goal of protecting our green spaces both downtown and in our rural areas can be well served by making our city a more "porous" community—one in which green spaces are systematically integrated in a connected network across the city to support the movement of wildlife and people and also filter and retain an increasingly precious resource, water.

Ellsworth needs a sustainable development plan that takes into consideration the city's large-scale ecological networks, emphasizes the role of green space in urban ecological function, and makes the integration of green spaces and corridors the framework around which our community will develop.

In order to achieve our overall goal and vision for the sustainability of Ellsworth's land resources, we established the following guiding principles and objectives to inform our analysis of current conditions and frame our recommendations and action plan for the next ten years.

A. Guiding Principles

a. Ellsworth must maintain and constantly act within an up-to-date, overarching land-use planning infrastructure that includes not only written plans and strategies but also the funding, staffing, and volunteer support to implement planning objectives.

b. Green spaces and trees, both privately and publicly owned, should be valued and managed to maximize the contribution they can make to the city's infrastructure requirements, especially those relating to air and water quality, stormwater management, water conservation, and pedestrian mobility.

c. Public and private partners must work together to conserve land so that we can protect water quality, wildlife habitat, and public access to natural places.

d. Trees and a substantial urban canopy are central to Ellsworth's history, character, and identity, and require dedicated planning and care by knowledgeable people on a regular basis.

e. Citizens in all city neighborhoods deserve easy access to parks, public landscaping, and recreational facilities that are appropriately managed by knowledgeable staff to maximize their aesthetic, social, health, economic, and ecological benefits.

f. Walkable trails in our green spaces, as well as corridors linking green spaces with other green spaces or sections of the community, are critical for maximizing the health of our ecosystems and our citizens.

g. The importance of green spaces and proactive leadership must figure into all levels of decision making, from that of private property owners and developers to city government, county organizations, and state agencies.

h. Ellsworth's success in realizing its aspiration to become a model green community will depend on the stewardship commitment of its private citizens, businesses, and nonprofits to the planning and care of green spaces on their own properties to maximize their ecological benefits.

i. For Ellsworth to become a model sustainable community, citizens must have public access to a diversity of green spaces (e.g., conserved land, landscaped parks and corridors, well-preserved cemeteries and other historic places, walking trails and other recreational spaces) and must be actively engaged in planning and caring for them.

B. Objectives

a. Overarching Considerations

To strengthen public and private mechanisms—including planning, funding, and human resources—for managing and facilitating sustainable land use in our city.

b. Natural Green Infrastructure

To inventory, safeguard, and enhance our natural green infrastructure, as well as integrate it more fully with our built infrastructure, in order to create a more sustainable system that benefits both the community and the environment.

c. Conserved Land

To preserve at least 50% of Ellsworth's total land area, and to make protected land accessible to the public to the greatest extent possible.

d. Trees

To return Ellsworth to its former status as a "tree city," with sustainable mapping, maintenance, and planting programs than enhance the city's character and quality of life as well as its environmental footprint.

e. Public Landscaping and Recreational Spaces

To develop more effective and sustainable staffing and management plans for existing parks, recreational facilities, and other landscaped spaces while diversifying their use and function, maximizing their ecological benefits, and increasing access to such spaces in areas not adequately served by them currently.

f. Trails and Corridors

To coordinate and greatly increase public access to green trails and corridors in and between Ellsworth's green spaces and thereby contribute to a level of connectivity that will convey ecological, recreational, and economic benefits to the community.

g. Land-Use Management and Municipal Leadership

To encourage and support the city in taking a leadership role by creating a more sustainable approach to land-use planning, management, and development across the community and the county.

h. Private Stewardship

To encourage and support private individuals, businesses, and nonprofits to take a proactive role in stewardship of their own properties, to maximize their environmental, aesthetic, health, and economic contributions to the community.

i. Community Access and Engagement

To ensure that all citizens and visitors have access to green spaces with a diversity of functions and amenities, and that citizens have substantive input into the development of green spaces and are engaged in their maintenance.

IV. What Is Working?

A. Overarching Considerations

Ellsworth has historically made substantial commitments to land-use planning and management with a three-person department concerned with economic development and planning and a two-or three-person department focused on code enforcement. The rejuvenated Hancock County Planning Commission and College of the Atlantic land-use-planning faculty and students have also been significant resources, in such efforts as waterfront planning and the 2004 Comprehensive Plan, the latter of which paved the way for a significant step forward through the Unified Development Ordinance (UDO). The level of volunteer citizen engagement over nearly 20 years of visioning exercises, with the city's Planning Board and its Recreation and Harbor Commissions, and in the context of our green planning all suggest that Ellsworth has a basic public and private foundation out of which strong sustainable land-use plans and strategies can emerge.

B. Natural Green Infrastructure

As one of Maine's largest municipalities by area, Ellsworth encompasses almost 94 square miles, nearly 80 square miles of which are land area. An attraction for early settlers was the vast expanse of forests on either side of the Union River. Although the logging industry, shipbuilding, and the manufacturing of other wood products led to the clearing of wooded areas in the town and along the river, today we are blessed by substantial wooded areas. These include tracts in the downtown core, some of which are permanently conserved for the public and others that are still under private ownership (the latter, for example, include the Whitney Tree Farm tracts off Route 1A and the Mountain Rock to Christian Ridge tracts on the west side of the river). Even larger tracts of undeveloped land remain around Branch Lake and in the northwest corner of the city. Ten undeveloped blocks of land larger than 1,000 acres exist either completely or

partially within the city boundary, including six blocks larger than 2,500 acres and three larger than 5,000 acres. The largest undeveloped blocks overlap with the neighboring towns of Surry, Trenton, and Otis. In a region whose primary draw is its natural assets and rural way of life, Ellsworth is fortunate to still have so much treed habitat and natural green infrastructure.

C. Conserved Land

Ellsworth has been one of Maine's fastest-growing cities during the past two decades[66] and has a current population of nearly 8,000. While one factor in that growth is undoubtedly the city's role as a regional service center and Hancock County seat, newcomers to Ellsworth who participated in green planning surveys and forums made it clear that the community's natural assets were significant factors and that they regarded the preservation of Ellsworth's rural character and natural areas—including access to the water—as being of the utmost importance.

The city's growth rate and influx of residents and businesses have put pressure on natural areas, but fortunately an important portion of Ellsworth's undeveloped land is conserved. Approximately 3,500 acres of land, roughly 6% of the city's land area, is permanently protected from development and subdivision because of the work of land conservation organizations, including Frenchman Bay Conservancy, Blue Hill Heritage Trust, Maine Coast Heritage Trust, Forest Society of Maine, Trust for Public Land, Maine Bureau of Parks and Land, Hancock County Trustees of Public Reservations at Woodlawn, and Birdsacre (also known as Stanwood Wildlife Sanctuary). Properties conserved in the past 15 years include Indian Point, the historic Jordan Homestead in Bayside, Meadowbrook Forest off the Bucksport Road, and significant tracts of land around our public water supply, Branch Lake.

If we use a broad definition of the term "conserve"—that is, including property being managed under the state's four current use taxation programs—40% of Ellsworth is in fact already conserved. Specifically, 20,726 acres of land are enrolled in the Tree

[66] Between 2000 and 2010, Ellsworth was credited as being Maine's fastest-growing city, with a population increase of 20%. Although its rate of growth has since slowed, its population still appears to be steadily growing; https://downeast.com/our-towns/ellsworth-maine/.

Growth, Farmland, or Open Space programs. (The fourth use taxation program is Working Waterfront.) Each program offers a tax reduction for landowners who keep their land undeveloped, with a strict financial penalty imposed if the land is removed from the program. These use taxation programs do not ensure permanent protection of this land but rather function as speedbumps, preventing current landowners from quickly proceeding with subdivision and development. For now, though, the level of property owner enrollment in these programs demonstrates that our objective of conserving 50% of Ellsworth's total land area is in keeping with the values of our citizens.

D. Trees

In 2010, with the help of land conservation organizations, the city took an important step forward by establishing Branch Lake Public Forest—a step that was also a nod to the importance of trees to the city's early settlers. Working forests and land that is in Tree Growth remain important features of Ellsworth's landscape today, to such an extent that the capacity of that land for capturing carbon means that, if that land use continues, Ellsworth will be able to make an important contribution to the state's goal of carbon neutrality by 2045—while also protecting its own air and water quality.

Green planning participants demonstrated a keen interest in the city's urban forestry and called for a comprehensive tree planting program. In the summer of 2018, the Green Ellsworth Parks and Green Spaces Subcommittee, together with students from College of the Atlantic, conducted a tree survey focused on Ellsworth's busiest streets: High, Main, State, Water, Oak, and Myrick Streets. They found 40 city-owned street trees, and identified about 400 potential new planting sites on the city's major thoroughfares.

Ellsworth citizens have already exhibited a strong interest in tree planting projects. Examples include the Ellsworth Garden Club's longtime Arbor Day tree planting program, the tree planting projects undertaken by both of the Ellsworth Rotary Clubs, and successful tree and shrub sales organized by the Ellsworth Garden Club and the Hancock County Soil and Water Conservation District. Frenchman Bay Conservancy has offered to host a community tree farm at the Jordan Homestead, and in the context of green planning consultations several individuals expressed interest in developing, contributing to, or volunteering for community tree planting and maintenance programs.

E. Public Landscaping and Recreational Spaces

Ellsworth has seen a tremendous expansion of parks and landscaped areas over the past 15 years, made possible by a combination of public, nonprofit, and private funding. The city landscaped along High Street and an alleyway leading from Main Street to Water Street parking. It redesigned Merrill Park, created S. K. Whiting and Knowlton Parks, and as an early gesture to the green planning process, switched to an organic lawn care service. The Ellsworth Garden Club completed a ten-year relandscaping of the Old Burial Ground as well as new landscaping in several downtown parks, historic sites, and public spaces. It also created school gardens in all three public schools and built a greenhouse at the high school. In the context of green planning, the Garden Club (with church and University of Maine Cooperative Extension Master Gardener volunteers) relandscaped the St. Dunstan's Episcopal Church property to demonstrate the use of native pollinator plants for low-care landscaping.

Over and above the previously existing recreational access to Green, Graham, and Leonard Lakes, in the past 15 years the city has also doubled the size of Harbor Park and Marina and refurbished Mill Pond Park, and the state introduced a new boat launch on Branch Lake. Given that the vast majority of Ellsworth's lake and river frontage remains privately owned, these areas and access points are of great importance to citizens.

This expansion of green spaces reflects a surging community interest in access to diverse green spaces, an interest made particularly evident through green planning consultations and, most recently, in the heavy use of green spaces during the COVID-19 pandemic.

F. Trails and Corridors

While there has been a reduction in access to traditional but unofficial trails and corridors, the expansion of public green spaces over the past 15 years has also extended to public walking trails and paths. In addition to previously existing woodland trail systems at Woodlawn, Birdsacre, the River Walk, the high school, and Whitney Tree Farm, all of the recently conserved properties offer trails, with most of them leading to waterfront access. A new series of trails at the Green Lake National Fish Hatchery also

provides access to the waterfront and historic sites, and bicyclers and pedestrians have benefited from the Rail Trail and the Downeast Sunrise Trail connector.

G. Land-Use Management and Municipal Leadership

Although not all of the green improvements proposed in the 2004 Comprehensive Plan were implemented, the plan did set the tone for the green spaces expansion that ensued. It also laid the groundwork for the significant revision of zoning and ordinances that became the 2014 Unified Development Ordinance (UDO), which was an incremental improvement over previous land-use planning mechanisms in setting development expectations. In general, the 2004 Comprehensive Plan, with its recommended land conservation fund and open space acquisition fee, and other related city planning documents (e.g., 2002 Waterfront Master Plan, 2004 Workforce Housing Study and Action Plan, 2007 Bicycle-Pedestrian Plan) presented forward-thinking ideas that have been embraced by the community—despite the fact that these plans have not yet been fully implemented. Previous city plans and recommendations, along with the new green spaces the city has created in the past 15 years, demonstrate the value of land-use planning and conservation, and reveal the city's leadership capacity and potential over the next 15 years.

In conjunction with our green planning, our Land Conservation Subcommittee has provided an important resource to help the city fulfill its leadership potential in land-use management. In 2020, Frenchman Bay Conservancy hired the Maine consulting firm FB Environmental to create a build-out analysis in partnership with the City of Ellsworth (see Figure 2.1), so that current and future city planners can make informed land-use planning decisions. A build-out analysis is a planning tool that identifies areas with development potential. The tool projects future development based on a set of conditions, including zoning regulations and population growth rate assumptions. The purpose of this work is to guide future development in the city, including identifying areas to protect, such as those that have an impact on the city's drinking water supply, valuable wildlife habitat, and farmland. The end products from the build-out analysis included a final report illustrating possible growth and development scenarios in Ellsworth; GIS shapefiles that the Planning Department and others can use in the future, including one

that shows the locations of all existing buildings; and a CommunityViz software program file that the Planning Department can use to model new scenarios based on new assumptions (see Online Support Materials[67] for further information).

While the build-out analysis provides valuable insight into future impacts that stem from current planning and zoning decisions, it is also intended to be a community engagement tool. Specifically, Frenchman Bay Conservancy did this work so that it, the city, and other partners can convene community meetings to discuss with Ellsworth residents and visitors how to plan for future growth while protecting our natural resources and quality of life. It is impossible to overstate the value of this community engagement work. It is a necessary step in the process of building a livable and sustainable community.

H. Private Stewardship

Behind so many of Ellsworth's green spaces there is a history of private stewardship. The Black family, for example, had the means and foresight to preserve Woodlawn while also contributing to the creation of Acadia National Park. The Richmond family saw the value of Birdsacre, and continues to expand and care for this wildlife oasis in the midst of Ellsworth's busiest thoroughfare. The Whitneys have preserved a tree farm that provides habitat and important recreational opportunities in central Ellsworth. The Jordan family recognized the historic and environmental significance of the land that had been in the care of their family since Ellsworth's settlement, and chose to conserve it despite potentially more lucrative options.

Of particular significance to our city's public water supply is a large tract of land on Branch Lake, some of which has been in the Cushman–Fenn family since the nineteenth century. The family valued the pristine water, and by the 1960s was stewarding more than 2,000 acres of land around the lake, which they saw as protecting the water from the effects of development. As increased taxes and upkeep of roads and property began to weigh more heavily over the years, the family considered the lucrative potential of major subdivisions and development, but they could not bring themselves to do that to the

[67] All Online Support Materials referenced in this plan can be found under the Green Plan and relevant action team or focus page areas at www.greenellsworth.org.

woods and water that had meant so much to them. In 2010 they sold 447 acres of land on Branch Lake to the City of Ellsworth for the protection of the drinking water supply, with the simultaneous sale of conservation easements held by Frenchman Bay Conservancy—including what is now Branch Lake Public Forest. The family also placed an easement, held by the Forest Society of Maine, on another 700 acres of land retained by the family. Thanks to these and other conservation organizations, and with financial support from the Land for Maine's Future program, this important tract of century-old forest and wildlife habitat is protected. However, it was the long-term foresight and stewardship—the valuing and caring for the land and water that was passed on from generation to generation in this family—that made this legacy possible for the citizens of Ellsworth in perpetuity.

The story of stewardship of the city's green spaces does not stop with families. It includes organizations such as the Ellsworth Area Chamber of Commerce, which had the foresight to establish Harbor Park and Marina; the Rotary Club of Ellsworth, which constructed outdoor classroom facilities on Leonard Lake near what is now the Elementary Middle School; and the Bryant Moore School students who created the River Walk behind the Ellsworth Public Library. It includes the Ellsworth Garden Club, which purchased a barren property used for dumping trash, created Ellsworth's first public park, and then proceeded to care for it over the next 65 years and counting.

It also includes the hundreds of citizens who annually contribute to the care of Ellsworth properties such as Birdsacre, the Garden Club's park and various public landscaping projects, Woodlawn's community gardens and other Master Gardener volunteer projects, and Frenchman Bay Conservancy projects such as cleanups at Branch Lake Public Forest and Card Brook.

This level of private stewardship in support of public green spaces bodes well for the future. So too does the level of interest we have seen from private property owners wanting to manage their property to maximize its value as wildlife and pollinator habitat or minimize its impact on water quality and stormwater runoff. The breadth and depth of our citizens' interest in stewarding the land may be one of Ellsworth's most promising assets for long-term sustainability.

I. Community Access and Engagement

People like open space—for spending time outdoors, for protecting wildlife habitat, and for protecting clean water. That's why this Green Plan proposes a bold vision for conserving open space in Ellsworth for people and nature.

There is ample evidence that people want to conserve green spaces in and around Ellsworth that are critical for long-term public access. For example:

- In 2004, when Frenchman Bay Conservancy purchased the 13-acre Indian Point Preserve, nearly 300 people made a financial contribution to protect this land from future subdivision or development, instead allowing for walking trails through the forest to the Union River.
- In 2015, Ellsworth residents and visitors voiced support for open space conservation through the City of Ellsworth Visioning Project. Nearly two-thirds of survey respondents were Ellsworth residents, and 83% of respondents considered it important to improve and connect trail systems. Similarly, large majorities supported downtown Union River shoreline redevelopment and protecting the quality of lakes and ponds in Ellsworth, particularly the drinking water supply, Branch Lake.[68]
- The 2015 Visioning Project survey responses mirror the sentiments from the 2002 Waterfront Master Plan, the 2004 Comprehensive Plan, and most recently, our green planning surveys, forums, and interviews.

Our citizens clearly place a priority on access to the land, as well as on contributing to the stewardship of that land. They also want to be engaged in the long-term process of land-use planning—both the conservation of property for the use of all, and expectations around other future land use and development.

V. What Is Not Working?

Citizen input into the green planning process reflected a high degree of concern and impatience around things that are not working when it comes to our community's

[68] www.ellsworthmaine.gov/visioning-project-2015/.

relationship with and care of the land our city occupies. The substantial research and groundwork undertaken by the six subcommittees that contributed to this chapter confirmed that citizen perceptions are justified on several levels. Working within our framework of objectives, the subcommittees identified numerous actions that could be implemented over the next ten years by private individuals as well as organizations and city government in order to better protect and care for our land resources. In the context of continued growth, Ellsworth's green spaces will experience further competing demands in the coming years, and we are proposing significant changes and interventions to make sure that our community becomes the city our citizens want it to be. We are confident that given timely action as laid out in this plan, it will be possible to realize that vision. For more detailed research materials, maps, and recommended actions, see Online Support Materials.

A. Overarching Considerations

Our success in realizing our objectives will depend first on having the administrative structure, staffing, volunteer expertise, partnerships, and organizational and planning frameworks in place to provide the capacity for necessary actions and for addressing specific recommendations in a timely and effective manner.

The intensive growth that Ellsworth has experienced over the past few decades, both in residential and commercial development and in the expansion of public green spaces, has had many benefits. However, it has also created many challenges for the community. If this rate of growth is to continue or accelerate, its impact is not sustainable under current management policies and practices. The build-out analysis initiated by Frenchman Bay Conservancy in support of our green planning provided map-based analysis of land development in the city by tracking changes over the past 25 years and projecting similar rates of development into the future to the point of full build-out—when all buildable sites will have been developed. The data provide a sobering picture of development to date and what our community could become if current public and private approaches to the land continue as they are now. The build-out illustrates that once land is crisscrossed with roads, cleared, paved, and carved up into housing lots, the opportunity to put the pieces back together will become a near-permanent impossibility.

While the build-out analysis demonstrates that Ellsworth still has the opportunity to protect large areas of land for people and nature, one only needs to take a short trip to virtually any suburban area to see how quickly this opportunity before us can disappear. The analysis facilitates comparisons with other, similar communities and cries out for the need to initiate high-level discussions around what land should be available for what type of development, what lands need to be protected, and how land that is currently protected (whether privately or publicly) needs to be cared for. The appropriate place for this community discussion—engaging private individuals, businesses, government, and nonprofits—is in the context of revising the city's 2004 Comprehensive Plan. Our first overarching recommendation, therefore, is for the city and its conservation partners to convene Ellsworth residents to discuss what they value and what they want to protect across Ellsworth's landscape. Without this community-wide discussion, we stand to lose clean water, wildlife habitat, and land for trails or traditional uses such as farming and forestry.

Recommendation L-1: In the context of comprehensive planning, conduct an inclusive, citywide discussion to determine a high-level strategy for balancing development with the preservation and care of green spaces, in order to maintain the character of the city that citizens want to sustain.

Further research undertaken by our Parks and Green Spaces Subcommittee also demonstrated the need for a coordinated management strategy for Ellsworth's public green spaces. This subcommittee undertook an inventory of all 60-plus public green spaces in the care of nonprofit organizations and city, state, and federal governments. It then did basic landscape surveys of each of those spaces, including interviewing individuals responsible for the care of the spaces as well as those using them. The data were uploaded and linked to a GIS map (see Online Support Materials for maps and the inventory). Findings related to specific types of spaces are discussed under relevant headings in this section. In general, however, the landscape surveys made it clear that beyond a limited number of contracts for lawn care and some landscaping, most of the city's green spaces receive little or no regular attention—or in the case of the schools, attention that is counterproductive to the environmental lessons students should be

learning. Too many of the city's green spaces lack appropriate signage or the regulations needed to maintain the spaces effectively and safely. Trees in city parks, at schools, and along the streets appear to be receiving no regular professional care, and structures at some of these sites are often in such a state of disrepair that they are dangerous. Cemeteries for which the city is responsible are in an especially sad state of disrepair. By contrast, most spaces owned or managed by the state or federal government or by nonprofits appear to be better cared for. All of this led the Parks and Green Spaces Subcommittee to conclude that the city needs to develop a formal management strategy for its green spaces and hire qualified staff capable of overseeing that management. Critical to this strategy will be partnerships with other government entities and organizations (as is currently the case with Branch Lake Public Forest), to ensure that both city properties and other green spaces are maintained in a manner that appropriately reflects the value citizens place on them.

Recommendation L-2: Develop a public green spaces management and development strategy for the city and its schools. This strategy should include a review of the Green Plan inventory and landscape surveys (see Online Support Materials); prioritization of the most urgent management needs and deficiencies; tiered management plans for each city-owned green space; a move to fully organic practices; preservation of natural areas; assignment of specific personnel, volunteer groups, or individuals qualified in the areas of tree and landscape management to each green space; and phased development plans for proposed new spaces.

Recommendation L-3: Improve public awareness and use of Ellsworth's public green spaces through a phased approach, including review and revision of Chapter 29 (Regulation of City-Owned Land) of the Ellsworth City Ordinances & Codes; signage at all city-owned green spaces, stating terms of use; online maps and guides for these spaces; and promotional signage for the spaces on all access routes in and out of the city.

Successful volunteer coordination, along with park planning and management, requires diverse and multilevel expertise from the ground up, from maintenance to planning and fundraising. Ultimately Ellsworth's parks and green spaces have the potential to provide work opportunities for a wide variety of skilled professionals. Although improved long-

range planning and management will cost money, incorporating a strong expectation for fundraising through government and foundation grants will mean that our green resources can be "green" in two senses of the word, as they attract financial resources from outside the city and correspondingly create work for local citizens. Even now, when city staff have had the time to make grant applications, they have usually been successful (most recently in the case of the 2019 grant for Harbor Park and Marina). Especially in the interest of addressing large, long-anticipated community projects such as a waterfront park, we urge the city to hire a director of parks and recreation. Having a qualified person in this position will be essential to appropriately caring for what we have, making it possible to implement long-range planning and secure the finances to realize green space projects that will make a difference to our economy and our way of life. Of the 15 towns in Maine with populations between 8,000 and 10,000, only 3 do not have a parks and recreation department: (1) Freeport, which runs its parks and recreation activities through the school department; (2) Cape Elizabeth, which is currently looking into developing such a department; and (3) Ellsworth.

Recommendation L-4: Hire a full-time city director of parks and recreation, with credentials in landscape and tree management or a closely related field, and one part-time or seasonal assistant.

Given the level of community interest in and support for green spaces in the city, it will be important going forward to have a mechanism to facilitate that engagement in the planning, care, and funding of such spaces. In particular, organizing and training teams of volunteers who can help the city and our nonprofits augment their budgets for paid staff will make a significant difference in the quality of care that green spaces can receive—as many of our surrounding communities have already discovered.[69] Having an organization that facilitates grant applications and fundraising establish a trust fund for Ellsworth green spaces could also make a big difference. Several city park foundations in Maine and farther afield could serve as successful models.

[69] For example: Bangor, Bar Harbor, Brewer, Franklin, Hancock, Lamoine, Rockland, and Sullivan.

Recommendation L-5: Establish a 501(c)(3) organization (referenced for convenience as the Ellsworth Parks Foundation, or EPF) to support the care, acquisition, and long-range planning of city parks and conserved areas by the city and local nonprofits.

Ellsworth's many and varied green spaces offer a rich opportunity to educate everyone from schoolchildren and families to volunteer and professional caretakers and citizen scientists. If the success of this Green Plan depends on a broad cross section of the community embracing and acting on its objectives, then education will be critical. Spaces such as Frenchman Bay Conservancy's Indian Point Preserve currently offer educational signage regarding both the environment and Ellsworth's history. The demonstration landscaping at St. Dunstan's Episcopal Church includes signage, and events are planned to promote low-care landscaping that maximizes biodiversity with native plants attractive to pollinators. The planned Museum in the Streets project will also add to the educational offerings in the city's green spaces. There are many more ways in which these spaces can perform an educational function with respect to things such as sustainable landscaping practices, green stormwater management, invasive species, tree and forest management, trail building, and organic gardening. Numerous granting programs could support educational signage, workshops, and events in the city's green spaces.

Recommendation L-6: Use Ellsworth's green spaces as educational sites for learning and exploration that will facilitate the public's capacity to embrace and act on our Green Plan objectives.

B. Natural Green Infrastructure

In a small city like Ellsworth that is currently blessed with an abundance of open space and naturally "wild" or forested property, it may seem that losing an acre or two of "unused land" to building and development, or maybe another acre of "empty field" to pavement, is always going to be an improvement. When we are driving by so much natural green landscape and hundreds of trees on a regular basis, why should we be concerned with preserving what currently exists in abundance—perhaps especially within the city's core?

The answer lies in the fact that such areas are not boundless or invincible—they are under threat from more than one direction. In some cases, what might seem like derelict land is actually habitat for a diversity of plants or animals whose existence is threatened. In many cases, that "unused land" is actually performing vital services for our community.

The 2020 build-out analysis has underscored the finite nature of Ellsworth's green spaces and the potential for them to be consumed by development if changes are not made in land-use regulations and policies. The 2004 Comprehensive Plan also identified this problem and set out to address it:

> *Ellsworth aims to promote a future development scenario that balances the wishes of residents for a high quality environment with the need to allow area for new businesses, minimizes residential and commercial sprawl that is costly to the city's infrastructure, preserves the character of existing neighborhoods and the downtown area and minimizes harm to natural resources. It aims to encourage new development that avoids unnecessary negative impacts on the tax base.*[70]

With the goal of "promoting a quality environment and minimizing harm to natural resources," the plan proposed to "reduce the percentage of total residential development that takes place in rural areas while encouraging a greater proportion of new development to take place within or adjacent to the growth area." It recommended "measures to minimize intensive commercial development along state highways in rural areas" (p. II.17). Unfortunately, those measures have not yet been implemented, and the last 15 years have seen a dramatic increase in commercial development along state highways in rural areas. However, the measures proposed in 2004 remain viable recommendations, which we are embracing with some modification or qualification in this plan.

Recommendation L-7: Designate a Natural Resource Zone for areas "critical" for "natural preservation" (pp. II.58–59), especially around lakes and waterways not already protected, with attention to "the wishes of residents for a high quality environment" (p. II.16).

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[70] Ellsworth Comprehensive Plan Update, Nov. 2004, pp. II.16–17, www.ellsworthmaine.gov/wp-content/uploads/2016/10/Comprehensive-plan.pdf. Subsequent page references to this plan are to this online version.

Recommendation L-8: Designate a Rural Forestry environmental protection zone (p. II.59) for large parcels of forested land surrounding Green Lake, to preserve the water quality in Green Lake and the Union River watershed.

Recommendation L-9: Implement an open space acquisition fee to be paid "for homes built on subdivision lots in rural areas that do not use the cluster option. This fee shall be set on a per lot basis and a higher fee shall be assessed for developments in the Natural Resource Zone. The per lot fee shall not exceed 5% of the fair market value of the lot. . . . The fee shall be assessed at the time a building permit is issued" (p. II.20). A similar but lesser fee should be assessed on a per-acre basis for the disturbance of 1 acre or more of natural area in all other zones except the Business Park and Industrial Zones.

The first of Maine's Growth Management Goals (which govern the focus of municipal comprehensive plans) is "to encourage orderly growth and development in appropriate areas of each community while protecting the State's rural character . . . and preventing development sprawl."[71] Although the expressed intention of the 2004 Comprehensive Plan was to minimize development in rural areas (pp. II.17–18), strip development along the major roadways leading into the city has continued, and even accelerated in the past 15 years. Green planning participants frequently cited strip development or sprawl as one of Ellsworth's most off-putting features. The thing one person disliked most about Ellsworth was that "access to natural areas is not apparent within the town." Part of the problem has to do with the designation of "rural zones" and the fact that many of the strips that residents classify as "ugly" and contrary to the character of the city they want to live in are designated as growth or commercial areas. This is despite the fact that they often exist against a backdrop of primarily natural areas or were previously working farmland or managed forests. If the goal is to minimize impacts on natural areas and represent the aesthetic and environmental character of the community that citizens wish to communicate to visitors, the current approach of officially codifying such zones is counterproductive.

[71] Growth Management Act (30-A.M.R.S.A. 4312.3.A.), http://legislature.maine.gov/statutes/30-a/title30-Asec4312.html.

Previously natural areas have all but disappeared along routes into the city, and current trends are leading to more and more development of natural areas farther and farther back from the roadways. The creeping consumption of green spaces not only limits the services of natural green infrastructure to the community (e.g., stormwater and water and air quality management) but also compromises the rural character of the community so prized by citizens. Residents may still know where to find unspoiled green spaces, but most visitors passing through the city would be surprised to learn that Ellsworth has much if any undeveloped land remaining.

Recommendation L-10: Discourage further expansion of strip development (including commercial light industrial development) by reviewing natural and open areas currently remaining within the Commercial Light Industrial, Rural Growth, and Rural Residential (along the Surry Road) Zones and protecting them from residential and commercial light industrial development through zoning and Unified Development Ordinance (UDO) revisions. Except for forestry and farming, all industrial and commercial uses should be prohibited in rural areas outside the industrial and commercial parks.

Beyond land development, other human threats to natural areas may be less obvious, but they are no less insidious. For instance, the impacts of climate change—among them rising temperatures, more extreme variations between too much and too little water, and forest fires—are creating challenging conditions for many species, including humans. Non-native animal and plant species, often inadvertently introduced into the wild by people, are outcompeting native species because our green spaces lack the natural predators or other controlling factors to keep invasives in check. In particular, invasive plants have become a serious problem throughout the community in parks and even smaller natural areas in the city's downtown, along roadways and riverbanks, and in larger tracts of field or forested property.

Recommendation L-11: Educate residents and city and nonprofit staff to protect the biodiversity of our natural areas by providing lists of invasive and recommended native species, free inspections to identify invasives, assistance with the control of invasives, and programming aimed at reducing mowed lawn areas and increasing the planting of native species.

A final point in this section concerns the need for a more detailed and scientific understanding of what actually remains of our natural green infrastructure. In order to fully appreciate what to protect and why, we need to know what we have and why it is important. The Maine Natural Areas and Beginning with Habitat programs provide data that can be used by planners and conservationists, among others, but the data are in no way complete. Especially in a city like Ellsworth, which has such a large land area, the manner in which the data are derived is problematic—especially the lack of fieldwork and extensive on-location cataloging of vulnerable or sensitive plant and animal species and habitats, or features such as vernal pools. Also, the data focus primarily on larger tracts of natural land, but smaller tracts of land in or closer to the downtown area are also critical habitat. In our immediate downtown core, citizens regularly report seeing wildlife that appear to have adapted to smaller green spaces in the urban area and may be reclaiming habitat they have lost (e.g., deer, bears, foxes, raccoons). Scientists are actually calling for more study of this phenomenon, to better understand animal behavior and the value of urban wildlife habitat.[72] This would appear to be one more reason (along with the value to stormwater management, preservation of the community's rural character, and citizens' quality of life, for instance) why the city should be systematically preserving and planning for natural green infrastructure within the developed core of the community.

Recommendation L-12: Using citizen scientists and postsecondary and nonprofit partners, augment existing inventories and maps of Ellsworth's vulnerable and sensitive plant and animal species and habitats, historic trees, and vernal pools, as well as seasonal urban wildlife habitats and travel patterns. The results should be made available to state agencies and the city's Planning Department, as well as to land conservation organizations, educators, and researchers.

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[72] Richard Conniff, "Habitat on the Edges: Making Room for Wildlife in an Urbanized World," *Yale Environment 360*, Jan. 3, 2018, https://e360.yale.edu/features/habitat-on-the-edges-making-room-for-wildlife-in-an-urbanized-world; Lowell W. Adams, *Urban Wildlife Habitat: A Landscape Perspective* (Minneapolis: University of Minnesota Press, 1994); D. Tylka, "Urban Wildlife Habitat—Present and Future," *International Journal for the Study of Animal Problems*, 3.3 (1982): 229–233.

C. Conserved Land

The Ellsworth Green Plan urges the city and its residents to protect from development the forests, farms, shorefront, open space, and wetlands on 50% of the total land within the city limits. How this happens should be up to Ellsworth's residents. The term "conserved" in this definition is broad and refers to land enrolled in Open Space, Farmland, and Tree Growth current use taxation programs, as well as permanent conservation through ownership by a land trust or conservation easement. Forty percent of Ellsworth is already enrolled in current use taxation programs. As noted earlier in Section IV.C, however, current use taxation programs provide only temporary protection from development. By contrast, conservation easements typically ensure permanent protection.

Citizens need to come together to take action to protect our land now—independently on their own land, and in partnership with our broader community through city and regional planning. Protecting half of Ellsworth means protecting roughly 30,000 acres through private land conservation and through a coordinated system of planning and zoning. Protecting 30,000 acres of land in Ellsworth would mean that the remaining 30,000 acres of land remain open for development—far more land than has been developed over the last several decades. The undeveloped land would remain as working forest and wild spaces in the largest configurations possible, with the majority of this land remaining in private individual or business ownership.

Recommendation L-13: Conserve and protect from future subdivision and development at least 50% of Ellsworth's total land area by 2030, including protection of farmland and working forests through working landscape conservation easements.

Recommendation L-14: Conserve sensitive wetlands, most of which would be too costly to develop, to prevent road building and habitat fragmentation, and to reduce future costly stormwater infrastructure construction. In particular, implement the recommendation in the 2004 Comprehensive Plan for the "purchase and creation of a recreational area along the edge of" Card Brook from High Street to the river (p. II.32), possibly in conjunction with necessary road and stormwater improvements in the area of

High Street and the preservation of the wetlands and natural areas around Card Brook above High Street.

Recommendation L-15: Establish a land conservation fund, in part funded by the open space acquisition fee (see Recommendation L-9), in order to leverage external funding and to support partner organization efforts to conserve natural and working green spaces.

Recommendation L-16: Leave large blocks of undeveloped land intact to protect deer wintering areas and other ecologically rich habitats.

Given Ellsworth's legacy of past land-use decisions, its development patterns present significant challenges for integrating a network of green spaces. But green spaces do still exist, and conserving and connecting them is still possible—for now. Connections between conserved areas are vital for people and nature, increasing the natural value of a place through links to other natural areas. For example, a downtown park could be connected with the Union River waterfront. Similarly, a large undeveloped rural tract provides better wildlife habitat when linked with other large tracts, rather than being left isolated and surrounded by developed land. These links offer the best long-term protection for wildlife as our climate changes over time. They also create green corridors that maximize accessibility to natural areas by the general public. Public access on private lands has a long, rich history in Maine, and this tradition should be incorporated in future land conservation as long as it is compatible with intended uses of the land. Although public access is a negotiable aspect of private land conservation projects, we need to continue to cultivate a stewardship ethic of respectful and responsible use of private land.

Recommendation L-17: In the context of planning and managing development, provide for connections between natural areas.

Recommendation L-18: Make protected land accessible to the public to the greatest extent possible.

Community-wide publicity and education relating to the importance of conserving land, especially large tracts of natural habitat for wildlife, should help lay the groundwork for our conservation objectives. However, we envision a more proactive, "kitchen-table"

approach to owners of 10 acres or more of natural or working lands, in order to ensure that these landowners are aware of the environmental importance of what they own and the options they might consider in order to conserve their property.

Recommendation L-19: Organize a proactive program for contacting property owners with 10 or more acres of natural or working lands that have not been permanently conserved, with the objective of planning for the conservation of large tracts of wildlife habitat and connecting corridors.

Finally, both existing and future conserved land should be carefully protected from the effects of abutting property use. Currently, some protected land is experiencing pollution of water bodies from upstream commercial properties and damaging stormwater effects from inadequately drained impervious surfaces. It is obviously counterproductive to conserve a piece of property and then allow other property owners to impact the land or water in this way.

Recommendation L-20: Create a special classification for all conserved natural areas that requires vegetative buffers and more stringent stormwater management on new abutting property developments. In order to address preexisting problems, create incentives and requirements for improvements in pollution and stormwater controls on previously established developments if new work involving more than 40% of the property (including parking areas) is undertaken.

D. Trees

The City of Ellsworth owes its location to the forested land on either side of the Union River—the remaining tracts of which are vital resources for our community. In recognition of that importance, the 2004 Comprehensive Plan recommended a rural forestry plan (p. II.35). Although that plan remains to be created, in 2010 the city partnered with Frenchman Bay Conservancy to establish Branch Lake Public Forest. That property currently makes important contributions to water-quality protection and recreational access. It could also provide a site for modeling low-impact forestry management in the context of a rural forestry plan.

Recommendation L-21: Develop a rural forestry plan that includes the promotion of low-impact forestry, the introduction of model low-impact forestry management at Branch Lake Public Forest, annual monitoring of timber harvests, and a review of current zoning and ordinances to ensure adequate protection of working woodlands as well as unmanaged forested natural areas and the habitats associated with them.

Our urban canopy has also had an important role in Ellsworth's past. From the early nineteenth century into the 1960s, the towering elms that lined our streets marked the character and public face of the community along access routes such as Bridge Hill, Upper Main Street, and High Street. In 1991 the city's Tree Ordinance was established in the wake of the prolonged decimation of these trees by Dutch elm disease. The ordinance called for the appointment of a nine-person Arbor Commission to support planting, maintaining, removing, and pruning city-owned trees. The commission developed a planting plan, sought grant funding, and recruited citizen contributions toward the installation of 76 new trees.[73] However, there was no apparent plan for the trees' long-term care, and many did not survive. Furthermore, it appears that among the plantings were several Norway maples. People did not understand then that this species is extremely invasive, and the trees have now fostered a destructive infestation on Bridge Hill and elsewhere in the downtown core, as well as in natural areas farther away from the city streets.

It is unclear when the Arbor Commission ceased to be appointed, but the 2004 Comprehensive Plan called for "tree planting measures on High Street and urban forestry programs in other parts of the growth area" (p. II.35). Shortly after the plan was completed, a major upgrade of High Street—including the planting of street trees and landscaping—was undertaken. While on paper the intentions of this project were excellent—and something that today's citizens would strongly favor—the execution of the project and the lack of a strong maintenance plan resulted in failure. The choice of tree species, the poor quality of stock that was planted, the lack of adequate growing and maintenance space, and the absence of long-term tree care contributed to disappointing

[73] Our thanks to the family of Helen Dudman, who chaired the commission, and to Ruth Foster for searching out relevant documents and details.

results and poor return on the investment of time and money. This and, more recently, a narrowly averted disaster with trees at Knowlton Park are good examples of why one of our earlier overarching recommendations (Recommendation L-4) addresses the need for the city to employ at least one staff member who has professional credentials and experience with respect to trees and landscaping.

Green planning participants expressed a strong desire for Ellsworth to have a serious urban forestry program that would provide for qualified care and attention for the existing canopy along streets and in public parks, as well as a program for further tree plantings along our streets and in public green spaces. They also noted that the loss of older, mature trees—whose impact on both water and air quality is exponentially greater than that of young, newly planted trees—seemed to count for nothing in the context of Planning Board review and contractor approaches to development. As noted in Section IV.D, we were fortunate to have university students, professional arborists, forestry experts, and tree enthusiasts come forward to contribute to this plan and to offer their volunteer services to help Ellsworth retrieve something of its treed past. Their support in creating surveys, recommended species lists, GIS-based plans, and lists of promising funding sources means that there is real potential to seriously address community concerns about the lack of street trees and the need for better care of the ones we do have.[74] Becoming a Tree City—as are several other towns and cities in our area—should be an objective for our community.[75]

Recommendation L-22: Revive the city's nine-person Arbor Commission under the terms of the current Tree Ordinance (Chapter 43), and include certified arborists and licensed foresters qualified to develop and oversee substantial urban and rural forestry programs across the city.

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[74] For the survey data, mapping, and projected visuals prepared as part of the College of the Atlantic study, see https://drive.google.com/file/d/18-k2Sxyypa31AfWAyARmSUA9We5HpeXe/view, pp. 130–153.

[75] The purpose of the Tree City USA program is "to celebrate the importance of an urban tree canopy and improve care of these vital city trees"; www.arborday.org/programs/treecityusa/. Examples of Tree Cities recognized by this program in our area include Bangor, Camden, Castine, and Orono, as well as 16 other Maine cities. There is a similar Tree Cities of the World program: https://treecitiesoftheworld.org/about.cfm.

Recommendation L-23: In order to inform an urban forestry program with canopy coverage goals and areas of focus, undertake a canopy coverage assessment and expand the street tree inventory to include all side streets and areas outside the downtown core.

Recommendation L-24: Develop and implement an urban forestry program that includes a regular schedule for improved maintenance of trees in all of Ellsworth's existing green spaces; a street tree planting program, beginning with the failed plantings along High and Myrick Streets; and a plan to protect mature trees, regularly introduce new tree plantings in Ellsworth's growth areas, and remove invasive species.

Recommendation L-25: In order to strengthen the urban tree planting program and reduce its cost, initiate a city tree farm on the Jordan Homestead property owned by Frenchman Bay Conservancy.

E. Public Landscaping and Recreational Spaces

As noted earlier under "Overarching Considerations" (see Section V.A), the detailed inventory and landscape surveys of Ellsworth's public green spaces revealed considerable variation in the level of care they receive. Spaces involving formal landscaping, hardscaping, and access to the water for swimming and boating are in a special class of green space requiring more intensive care and attention than more natural public areas. Some of these spaces managed by organizations are consistently receiving this kind of attention (e.g., Donald Little Park, maintained by the Ellsworth Garden Club), but we heard from other nonprofits that they are struggling to fund the necessary staff or find the resources to address critical projects (e.g., Birdsacre care and trail work, Woodlawn's formally designed garden and family tomb). If these organizations are maintaining valuable facilities that are heavily used by the community, the city should be prepared to provide modest financial assistance to help maintain them.

Recommendation L-26: Annually invite nonprofit organizations maintaining public green spaces to make requests to the city for modest budget allocations, dependent on specific projects, financial need, and annual reports of work accomplished.

Several sites maintained by city staff were notable for the attention paid to public landscaping. The library, City Hall, Harbor Park, and S. K. Whiting Park are good examples—in all cases because dedicated staff and in some cases volunteers have taken responsibility for the care. In three of these spaces, however, larger hardscaping issues beyond the expertise or responsibility of the regular staff person have gone unaddressed to the point of serious deterioration (e.g., library steps and landscaping leading down to the river; walkways at Harbor Park; a walkway at Whiting Park). Problematic landscaping along High Street and the apparent lack of a sufficiently broad maintenance plan at the Old Burial Ground further demonstrate the need for an overall plan for maintaining city parks and landscaping, as well as for qualified full-time personnel and systematic professional and volunteer recruitment to implement such a plan.

Two types of spaces require special mention: cemeteries and recreational facilities. There are 15 documented cemeteries in Ellsworth, and the green spaces inventory team was able to visit 13 of them.[76] Apart from their social and personal significance, all of the cemeteries are valuable green spaces that help compensate for the lack of recreational conserved land or formal parks in some areas of the community, while also providing habitat for wildlife. They are cared for by cemetery associations, families, or in five cases, the city. Those currently open to burials receive funding through the Cemeteries Trust Funds (managed by the city). They are mowed, and access routes are more or less maintained. Woodbine Cemetery, which is home to formal historic landscaping and several historic trees, is in the process of removing deteriorating trees, although the plan for replacement is unclear. It has also instituted a program to care for deteriorating stones. Except in this cemetery, however, there has been almost no attention to historic grave markers and predominant noncompliance with state law, which requires all cemeteries to be marked and enclosed by fencing or other mechanisms.[77] The reasons for such laws are evident from the example of the Old Burial Ground, Ellsworth's first public burial site.

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[76] Cemeteries visited: Old Burial Ground, Beechland, Gray (also called Oak), Fullerton, Wilson (city maintained); Woodbine/McKenzie/Mosley complex, Mt. Pleasant, Juniper, Nicolin, Birch Grove (association maintained); Black, Garland, Jordan (family maintained). Not visited: Floods and Old Catholic Cemeteries.

[77] Beechland Cemetery did have fencing along the roadway, but it was removed in the context of roadwork and never replaced.

Until fairly recently it was never enclosed or landscaped, and the result has been building encroachment and serious snowplow damage which obliterated or damaged many grave markers and burial sites on all sides of the cemetery except its State Street frontage. Although the city and the Ellsworth Garden Club undertook a ten-year project to landscape and enclose this space, only the strip of landscaping outside the fence on State Street is currently being maintained beyond regular mowing.

As recommended in the 2004 Comprehensive Plan, the city needs to do a better job of "preserving and protecting . . . abandoned cemeteries" (p. G.12), and it needs to better manage and allocate Cemeteries Trust Funds to ensure that these and other cemeteries are appropriately cared for. We also heard from green planning participants that green burial options need to be made available in the City. This is a much simpler and less costly burial practice involving only a burial plot, interment fees and a shroud or environmentally friendly casket. Such practices are allowable in Maine, and two already exist: Cedar Brook Burial Ground in Limington and Rainbow's End in South Orrington.

Recommendation L-27: Revise the Cemetery Ordinance to lay out protocols for best management practices of historic cemeteries in the city, including the mapping and care of gravestones, weed whacking, lawn mowing (push and riding mowers), and alternative groundcovers. Particular attention is required for the Old Burial Ground.

Recommendation L-28: As provided for by the Cemetery Ordinance, appoint a cemetery board responsible for developing and overseeing a best practices management plan for historic cemeteries, and for reviewing investment and distribution of interest from the Cemeteries Trust Funds.[78]

As for recreational facilities, some are well maintained (e.g., the state boat launch on Branch Lake, the city's Mill Pond Park), whereas others are in need of attention beyond the standard mowing and lawn care. Deteriorating infrastructure at the Green Lake boat launch and the virtually invisible Leonard Lake boat launch are two examples. The latter was specifically singled out for attention in the 2004 Comprehensive Plan, but as we noted in Chapter 1 of this plan, both that launch and the three other publicly owned

[78] This fund totaled $680,000 in 2018 with quarterly interest of $3000.

access points to Leonard Lake need improved signage and attention (see Recommendation W-48). A particular case is the city-owned Leonard Lake shorefront property at Lejok Street, where an outdoor classroom was constructed by the Rotary Club. Although the space is very popular with citizens and is still a useful place for environmental education, its wooden structures have deteriorated to the point of being unsafe and need replacement to make the space usable for school groups.

Recommendation L-29: Refurbish the Leonard Lake outdoor classroom facility at Lejok Street, including providing adequate signage and a stream crossing to facilitate access to different parts of the property without returning to the street.

The campuses of Ellsworth Elementary Middle School and High School, together with that of Hancock County Technical Center, constitute a large footprint in the city's overall green infrastructure. School gardens, a greenhouse, an orchard, and Arbor Day tree plantings are maintained by teachers, students, and volunteers, but these efforts currently lack strong coordination within and across the schools, and particularly during the summer vacation, maintenance is a challenge. As in other school districts, the *School* Department needs to appoint a garden or outdoor classroom coordinator who can help coordinate teachers, students, and potential community volunteers to assist with the gardens.

Recommendation L-30: Hire an outdoor classroom coordinator to provide continuity for gardening and other outdoor classroom activities throughout the year across all three Ellsworth schools, and facilitate the engagement of teaching staff and students in curricular and extracurricular activities relating to the schools' outdoor campuses.

With the school garden being a required curricular component for all K–8 classes and with a "Green Team" in place at Ellsworth High School, teachers regularly use their outdoor campuses to educate students about the environment and sustainable agriculture. There is a disconnect, however, between these objectives, which include the planting of native species and preservation of natural areas, and the practices of School Department maintenance staff whose summer focus is primarily on recreational facilities—mowing and caring for sports fields and the cross-country trails. While these staff apparently are not expected to care for the limited number of trees and formal landscaping, which

largely go without attention, they do apply their playing-field mowing and weed-whacking practices to what should be natural areas. This problem is further exacerbated by the limited landscaping and number of trees, which have led to descriptions of our school campuses as being “severe” and “sterile.”

Recommendation L-31: Work with School Department maintenance staff to clarify the role of the outdoor school campuses in supporting curricular and extracurricular education and the overall role of school campuses in the city’s green infrastructure. This should include training for staff in the maintenance of trees and landscaping, biodiverse natural areas, bioswales, and invasive species.

The 2004 Comprehensive Plan recommended revitalizing the city’s waterfront (extending from Harbor Park to the Union River bridge; p. II.26), as does Chapter 1 of this plan (see Recommendations W-28 and W-29). Green planning participants were virtually unanimous in arguing that revitalization of the waterfront is long overdue and that improvements in green spaces and a walkway along the river should begin with improved landscaping at Harbor Park. Despite the city’s existing array of green spaces, green planning participants strongly expressed a need for other types of parks as well. These included gardens for engaging seniors in horticultural activities for therapeutic purposes, a dog park, adult exercise facilities (for both seniors and younger adults), and more multiuse parks and walking trails distributed across Ellsworth’s neighborhoods (including those near High Street and in rural areas, both of which were deemed “deficient” in this regard in the 2004 Comprehensive Plan [p. H.8]). Results of the green spaces inventory and landscape surveys also suggest that a formal study of ADA (Americans with Disabilities Act) accessibility across our green spaces should be done to determine the extent to which all of our green spaces could be made more useful for individuals with a range of disabilities and health needs. All of these citizen requests should be incorporated into the long-term green spaces management and development strategy cited in Recommendation L-2, but the development of new parks may be most effectively negotiated as a regular consideration when reviewing residential and commercial development applications and through the regular review of tax-acquired property prior to sale.

Public expectations regarding green spaces should not be surprising in the context of Ellsworth's recent increased development, as longtime residents fear the loss of traditional natural areas to development, and as new residents bring with them expectations for the kinds of amenities larger cities offer. As a result, green spaces have emerged as central to the increasing tensions around Ellsworth's transition from the culture of a rural town to that of a small but densely populated city hub. If the emphasis is primarily on smaller, low-care green spaces and assistance with maintenance from neighborhood volunteers, then implementing these suggestions should not greatly increase the maintenance burden for the city. Local businesses and nonprofits could be good partners in helping to implement refurbishments and create new green spaces.

Recommendation L-32: Upgrade landscaping at Harbor Park as a first step toward creating a more extended waterfront park with a river walk and landscaping along the river.

Recommendation L-33: Upgrade landscaping along High Street to include lower-care and more sustainable, attractive, and functional plantings. Ideally these should be bioswale plantings designed to absorb and filter stormwater runoff from paved surfaces.

Recommendation L-34: Enhance the range and distribution of park facilities, including more High Street and rural neighborhood parks, a dog park, and a downtown green space on Franklin Street in front of City Hall.

Recommendation L-35: Commission an accessibility inventory and action plan for Ellsworth's green spaces, with attention to the level of ADA access and related improvements. This effort should also consider broader issues, such as the potential to enhance green spaces for therapeutic value (e.g., for seniors), for health-related uses (e.g., a broader range of adult exercise facilities), and for their appeal to the senses of smell, hearing, touch, and taste as well as sight.

F. Trails and Corridors

While the past 15 years have seen an increase in the number of recreational trails in Ellsworth, this increase has occurred largely on newly conserved areas. While these are important additions, connections and corridors between Ellsworth's various green spaces

now need to be major considerations to maximize the benefits of these spaces for both people and wildlife. An important example of such connections has resulted from the recent acquisition of properties that were part of the original land grant to the Jordan family in Bayside. Together, the Jordan Homestead property acquired by Frenchman Bay Conservancy on the river side of the Bayside Road and the tract of Jordan property on the other side of the road acquired by the Stanwood Wildlife Sanctuary (Birdsacre) created an important natural corridor between Route 3 and the Union River. Other potential linking corridors currently in use that could be further formalized with easements include numerous old woods roads, utility easements, and snowmobile trails.

A system of multiuse recreational green trails has long been proposed for Ellsworth, and segments of that system are already in place. The 2007 Bicycle-Pedestrian Plan needs updating and revision, as segments of the plan have been completed and new opportunities need to be incorporated—for instance, a link (currently in the planning stages) between the Rail Trail and the Downeast Sunrise Trail connector. One component of this plan still seems like a long-range ambition—the proposed bike and pedestrian loop around Leonard Lake (see Recommendation W-49 in Chapter 1). A more immediate, incremental step in that direction could involve upgrading the Leonard Lake trail from Sterling Street to Forest Avenue, including improved ongoing maintenance of this entire green space, signage, and a bridge or other connection across the stream. Similarly, current efforts to upgrade the River Walk behind the library represent incremental improvements over time that can ultimately make it possible to realize the proposed Leonard Lake loop. In general, a regular practice of identifying opportunities to acquire properties and easements in the context of new development and tax-acquired property will make it more likely that Ellsworth's Bicycle-Pedestrian Plan will be realized.

Recommendation L-36: Update the 2007 Bicycle-Pedestrian Plan to include a system of green and walkable corridors linking green spaces on both sides of the river. The update should prioritize links with the most immediate potential and maximum impact (e.g., Rail Trail extension to the Downeast Sunrise Trail connector) and should identify properties, woods roads, utility easements, and snowmobile trails that, over the longer term, could help realize these corridors.

Recommendation L-37: Upgrade the Sterling Street to Forest Avenue corridor as a potential link with the River Walk and an incremental step toward creating the Leonard Lake bike and pedestrian loop.

G. Land-Use Management and Municipal Leadership

While private individuals and organizations are committed to effecting a change to more sustainable land use in Ellsworth, the leadership of city government will be essential in shaping and supporting those changes. As we contemplate a period of recovery from COVID-19, this is an opportunity for Ellsworth to join cities elsewhere in showing leadership by using this time as an opportunity to "build back better—and more sustainably."[79] In Chapter 5 of this plan we call for revision of the 2004 Comprehensive Plan with reference to the objectives and recommendations laid out in this Green Plan.

One of many reasons to revise the 2004 Comprehensive Plan is to engage citizens in discussions around sustainable development (Recommendation L-1 in this chapter)—in particular land use, housing, and the future character of the community—so they can ultimately inform changes in the Unified Development Ordinance (UDO), zoning, and other regulations (see Recommendation IA-4 in Chapter 5). We heard clearly from both longtime and new residents of the city that they see the way we allocate space and the expectations we place on how our land is used as directly reflecting our values as a community. They want to be engaged in future land-use planning, and they had many immediate recommendations specifically relating to the UDO (some of which are noted elsewhere in this chapter and in Chapter 5 and are not duplicated here). In the context of sustainable land use, our review of current practices along with citizen input and a valuable study undertaken by College of the Atlantic students have all brought to light a substantial list of additional areas on which the UDO revision needs to focus.[80]

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[79] See, for instance, the 2020 Declaration for Resilience in Canadian Cities: www.2020declaration.ca.
[80] A 2018 study by College of the Atlantic land-use-planning students in support of this plan proposed numerous changes to Ellsworth's approach to land use and provided specific examples of how these changes could positively affect areas such as High Street and the waterfront: https://drive.google.com/file/d/18-k2Sxyypa31AfWAyARmSUA9We5HpeXe/view.

Although few green planning participants were familiar with the specific terminology, they were generally supportive of the objectives and practices behind low-impact development (LID) and form-based zoning, especially in commercial areas outside historic districts. They also wanted greater attention given to the aesthetic expectations placed on developers—including design and materials guidelines in historic areas (including High Street as well as Main Street areas). There was an impression that Ellsworth generally sets its expectations too low, and one developer we consulted actually asked "What's wrong with Ellsworth? Why are its expectations so low?" When it clings to the lowest possible standards, the city limits its capacity to attract high-quality investments and the property values and tax enhancements that go with them. As College of the Atlantic students urged, Ellsworth needs to pay more attention to quality versus quantity and focus on preserving and enhancing its unique character as a community.

Recommendation L-38: Undertake a comprehensive revision of the UDO and other city codes, regulations, and zoning and enforcement mechanisms, to achieve the following 11 objectives:

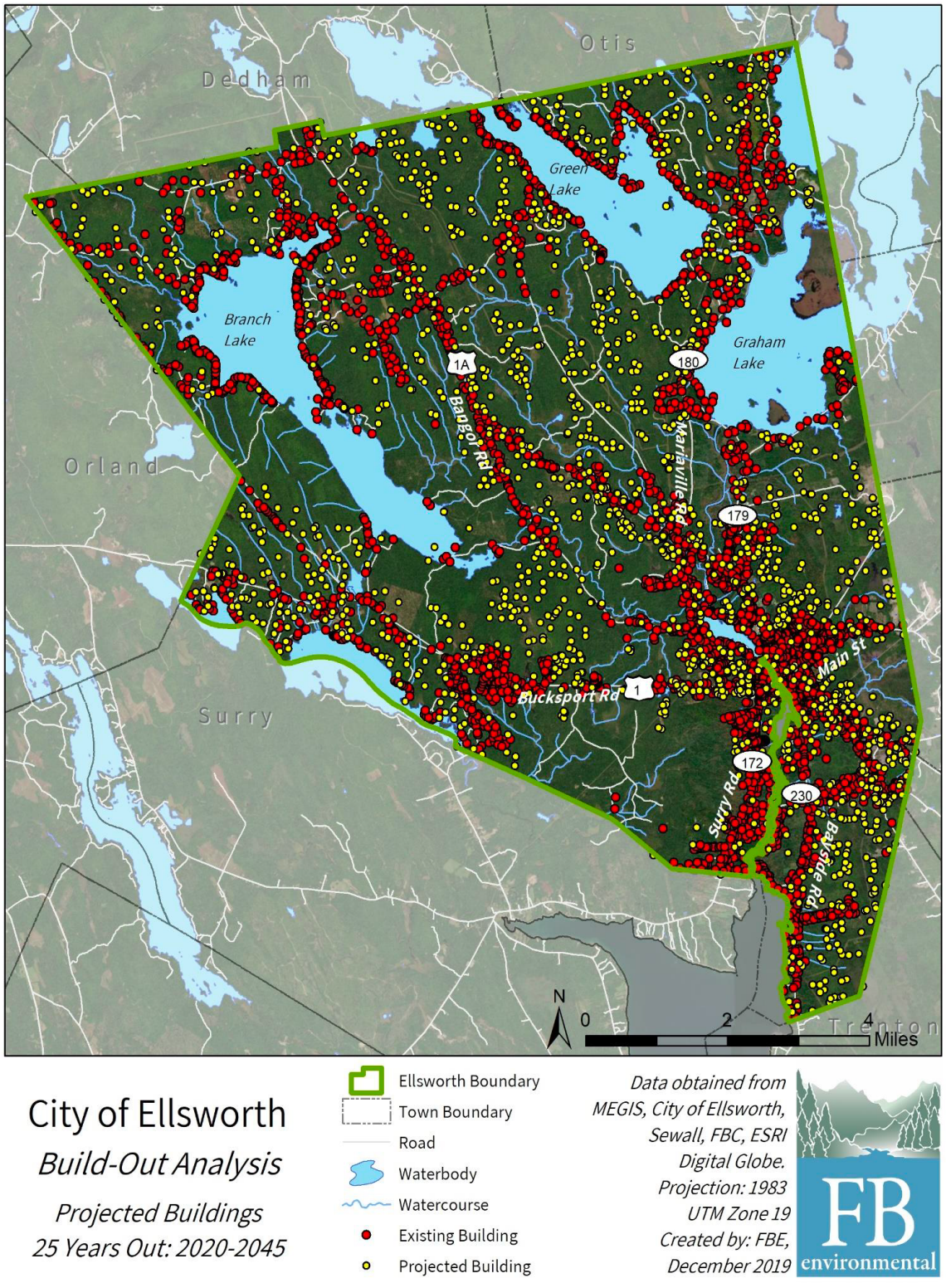
(1) More sustainable land use and preservation of the rural character of our community, by better conserving our natural and working green spaces and by reducing sprawl.

This was a major objective for land-use revision in the 2004 Comprehensive Plan, and in our Natural Green Infrastructure and Land Conservation recommendations (Recommendations L-7, L-8, L-9, L-14, and L-15) we have already reiterated and extended several of the 2004 land-use-related recommendations that were intended to address this objective but have not been implemented. Additionally, we suggest a review of current rural growth and commercial zones with an eye to more effectively controlling sprawl and its expansion into natural or previously working green spaces.

As suggested in the 2004 Comprehensive Plan, we urge the adoption of a form-based approach to managing development, in which the physical characteristics of districts and neighborhoods are customized to the needs and expectations of the community. With the assistance of our build-out analysis (see Figure 2.1), this approach should begin by identifying the intrinsic value of particular lands and areas of the city (e.g., for agriculture, scenic views, historic preservation, natural habitats, public access to the

water and recreation, environmental services such as stormwater control and preserving water quality). The focus should then be on preserving, enhancing, or transforming the character and amenities of areas with clear expectations as to how development will contribute to public streetscapes, landscapes, and the rural character of our community.

Figure 2.1: City of Ellsworth build-out analysis



In particular, the ordinance governing cluster development should be revised, as it appears to be encouraging rather than discouraging development in rural areas. Providing for green, walkable corridors connecting neighborhoods, districts, and wildlife habitat should be a prime consideration in community planning and the review of applications for new development. Likewise, we need to provide for historic, cultural, and scenic districts or corridors (e.g., Bridge Hill, Shore Road). An important step in this direction—for which there is strong public support—would be to reclassify shoreland property on Water Street from Harbor Park and Marina to the dam, in order to pave the way for waterfront revitalization. Industrial uses need to be excluded in this area (grandfathering current businesses but prohibiting further nonconforming use beyond the current occupant of the property), and design, materials, aesthetic, and environmental guidelines need to be applied to reclaiming and transforming this area. This effort should be accompanied by tax incentives to encourage any nonconforming businesses to relocate to the industrial or business parks.

(2) More intensive "smart development" in the city's core business districts, with attention to vacant or derelict commercial properties.

There has been a tendency for the city to rezone more rural and residential areas in order to facilitate commercial development in those zones, rather than create regulations and incentives that make it more desirable for such development to occur in existing commercial districts where land is not being used to best advantage. A good example is Buttermilk Road, which has been zoned commercial while large vacant or underused properties exist nearby along High and Myrick Streets. The Beckwith Hill/Triangle Development District Program and the Infrastructure Financing Plan make it more cost-effective for commercial developers to look to a location like Buttermilk Road rather than Myrick Street.[81] For existing businesses in the Myrick and High Street area, there is a similar disincentive to further develop in their current location versus looking to relocate to a less expensive location. Removing Buttermilk Road's commercial designation and

[81] Council Order #060503, appended to City of Ellsworth Ordinance, Chapter 54: Development Fee Ordinance, www.ellsworthmaine.gov/wp-content/uploads/2016/06/ord54_Development_Fee.pdf.

making development in Myrick and High Streets more cost-effective are examples of how the city could encourage more growth in areas where it would be most beneficial.

A form-based approach to managing development could encourage smarter innovations in and around the city's business districts (Main, High, and Myrick Streets) by developing underused areas and preserving or remodeling existing buildings to specific standards with a focus on the overall character of the neighborhood or district that citizens ultimately want to create or maintain. The focus could be on facilitating mixed rather than singular commercial uses (e.g., a mixture of residential and commercial development, green spaces and high-density buildings, and daycare, restaurants, and entertainment). This type of intensive, mixed development has the added advantage of creating walkable and livable spaces that reduce the use of private vehicles and fossil fuels.

(3) A comprehensive reconsideration of allowable land uses in various zoning categories.

Whether the city chooses to embrace form-based codes in some areas or remain with zoning in other areas or across the community, it needs to reconcile what are currently some inherent conflicts among allowable uses and the development of sustainable neighborhoods. One example is allowing gravel pits adjacent to (or even within) a residential development. The potential of noise, air and water pollution, and heavy truck traffic immediately adjacent to housing development is counter to the development of sustainable communities and inconsistent with the land-use objective of protecting health and safety (to say nothing of property values). Even with mixed land uses facilitated by form-based codes, there need to be limitations on locating industry, mining, and other activities that are not suitable for many districts or neighborhoods.

(4) Development of allowances for more innovative land-use control and short-term tactical experimentation.

The shift from current zoning to from-based codes and new urbanist practices clearly cannot happen overnight. However, the city could test these new approaches by reviewing its various existing instruments for planning-related land-use control with the intent of making them more flexible, to allow and encourage mixed-use development and

planned unit developments, and to focus attention on developing and reinforcing neighborhood structure in particular areas. Additionally, the Planning and Code Enforcement Departments should encourage and even initiate "tactical urbanism"—temporary interventions that enable the community to experiment with new approaches to specific land uses. For instance, Heart of Ellsworth's Taste of Ellsworth event, for which a block of Franklin Street is closed off to traffic and transformed into a public gathering space, could be seen as an experiment preliminary to the community transforming that space into a park and pedestrian mall.[82]

(5) Amendment of regulations on the percentage of a property that can be occupied by impervious surfaces.

The goal should be to reduce the amount of new impervious surfaces and introduce incentives for both new and existing developments to introduce smart building approaches and green infrastructure in order to limit their stormwater impact. While the Planning Board currently reviews some new development within the context of the UDO, once a building has been built (whether or not it underwent Planning Board review), little attention is paid to the expansion of impervious services and their impacts on the stormwater system or water quality. Stormwater system user fees combined with credits or rebates could be one way of encouraging greater incorporation of LID practices into new and existing developments.

(6) Revised parking requirements and allowances for various land uses.

Parking requirements need to be consistent with observed and expected parking in present and future developments. For example, it seems clear that many of the parking lots along High and Myrick Streets are excessively large (many spaces are never filled, even during peak parking periods). A reasonable reduction in the number of required parking spaces could allow for lower development costs for new development, repurposing of existing and underused parking spaces for new development, replacement of some existing spaces with greener and more appropriate landscaping, and promotion

[82] For other examples, see this College of the Atlantic study: https://drive.google.com/file/d/18-k2Sxyypa31AfWAyARmSUA9We5HpeXe/view, p. 90.

of alternative transportation access to various developments. In the future the city should encourage parking to be located behind buildings, rather than between the street and the buildings. This change should be part of future form-based standards. For existing commercial establishments, there should also be a permitting, or at least a review, process to ensure that there are adequate measures for mitigating runoff (e.g., pervious paving, landscaping, bioswales) when businesses want to replace natural areas or open spaces with parking areas.

(7) Enhancement of performance standards.

There are some performance standards within the UDO. However, these need to be reviewed in the context of disparate land-use types being allowed within the same or adjacent zones; advances in technology; road design and maintenance; and runoff control, especially regarding the use of green infrastructure to control stormwater. The UDO should directly address the preservation of green spaces, heirloom trees, historic stone walls, and other landmarks, as well as aesthetic and functional requirements for landscaping around commercial and residential property that better reflect the character of the community citizens want to cultivate. This should include consulting the recommended and invasive species lists (available in the Online Support Materials). It should also include “the planting or retention of a minimum number of trees” (2004 Comprehensive Plan, p. II.36) in both residential subdivisions and commercial developments. There needs to be an emphasis on preliminary inventories of mature tree growth and insistence on the retention of that growth. In general, performance standards should incorporate the need for public green spaces and green corridors in the context of all neighborhoods and the expectation that developers will contribute to the creation and maintenance of those spaces. Additionally, there should be greatly upgraded standards with respect to design and building materials that are appropriate to the historic character of the community and attention to allowable noise and light levels beyond what currently exists in the UDO.

(8) Incorporation of Leadership in Energy and Environmental Design (LEED) standards, including at least the seven elements of green building, in the UDO and as subjects of attention in Planning Board reviews.

LEED standards were established by the U.S. Green Building Council in 1994. They are neither new nor outrageously proactive. Other communities in Maine have used them to develop Green Building codes (e.g., Portland) or have agreed to adhere to LEED standards in all new city buildings (e.g., Bangor). Several local businesses and organizations use them, or adaptations of them, already (e.g., Jackson Laboratory, Stanley Subaru), and "green building" businesses are an increasingly important feature of the Maine economy (e.g., Fore Solutions in Portland).

(9) Introduction of incentives and other measures designed to encourage changes in existing development, to bring them into compliance with current standards for new development and overall land-use objectives.

Green planning participants noted that simply raising expectations around future development was not sufficient. As one person observed, "It's a bit like closing the barn door after the horses have run away." Participants wanted attention called to existing development that had been approved in the past with, for instance, little to no meaningful landscaping or insufficient attention to tree cover (as described by one survey respondent, "housing clusters with no green space, little connection to public landscape—pockets of huge commercial development with no landscape requirement except catchments = Nowhere's land"). Such properties could continue to detract from more recent developments governed by revised codes with improved standards, unless measures are introduced to encourage changes in preexisting developments.

(10) Stronger enforcement capacity, practices, and mechanisms as they apply to codes, zoning, and the UDO.

Any new zoning or codes will need explicit follow-up through code enforcement and other means. Changes will only be as effective as the mechanisms for inspection and enforcement, so these mechanisms should also be reviewed and codified at the same time.

(11) Recruitment and ongoing inclusion of expertise relating to natural habitats, landscaping, farming, forestry, and trees on the Planning Board, and regular use by that

board of the recommended plant and tree lists (available in the Online Support Materials) when reviewing development applications and advising developers.

Another land-use-related area around which green planning participants were looking to the city for leadership is sustainable housing. Although the subject was deemed outside the major focus areas of this Green Plan, in the context of consultations on sustainable development and land use we did receive citizen input on it. Participants suggested that there should be a community-wide consultation regarding housing needs and the desirability and percentages of different types of housing (e.g., affordable, workforce, middle income, single family, multifamily, rental, subsidized).

Because there have been significant changes in housing since the last professional study was done Green Ellsworth felt that it did not have the necessary data to address this important area of concern beyond noting that an up-to-date housing inventory is needed in order to genuinely understand the state of housing in the city and to establish clear planning goals and objectives going forward. Much affordable housing has been built since the 2004 Comprehensive Plan, but based on occupancy rates, for instance, is it enough or too much? The guidelines for Maine's Growth Management Act suggest that "at least 10% of new residential development built or placed during the next decade be affordable" (with "affordable" defined as within the means "of those earning the median income in the region").[83] Citizens suggested that attention should also be paid to the needs of middle-income, first-time home buyers and possibly to high-end retirement facilities that could attract well-to-do retirees to invest in the community. Representatives from the business community noted that Ellsworth needs to operate from a regional perspective and that any housing inventory needs to consider housing in surrounding communities as well. They noted that there are many reasons why people may find housing outside the city more affordable and desirable; unless those people can afford vehicles or decide to move to Ellsworth, businesses in the city are unable to draw on them as employees or customers. A worthwhile housing inventory thus needs to go beyond Ellsworth housing stock to consider that of abutting communities and the

[83] 07-105 Chapter 208, p. 43, www.maine.gov/dacf/municipalplanning/docs/ch208_annotated_2014.pdf.

interface with current or potential public transit that would make access to the city more regular and dependable (see Chapter 4 for more detail on public transit).

Given the substantial amount and variety of new housing recently built in Ellsworth, and some of the issues that emerged from citizen input, we feel that broadening and updating previous housing studies for the city will be essential for revising the current comprehensive plan. Citizens were concerned that any future study consider the location of housing with an eye to balancing broader objectives to reduce sprawl and maximize the development of underused properties in the city core, with the need to preserve and strengthen the character of neighborhoods and heritage housing stock. We received strong input concerning the need to focus on the substantial challenges around old housing and proactive measures to make it more attractive and affordable to home buyers as well as more energy efficient (addressed in more detail in Chapter 4). Considerable concern was expressed about the tendency for historic homes to become investment rental properties with minimal to no upkeep, which affects both the housing conditions for renters as well as neighborhood property values. This trend and the inability or unwillingness of historic home owners to manage the upkeep of their properties leads ultimately to a decision to tear down these homes because it reduces taxes or is cheaper to build new than to repair them.

In some cases, City Council's decision to tear down derelict historic buildings may be justified with respect to public safety, property values, and aesthetics, but the city's actions and focus need to come much earlier in the process so that as many of Ellsworth's historic buildings are preserved as possible. In the past few years the city has lost far too many historic structures. These are irreplaceable, and each time one of them disappears the sustainability of the community is compromised as we lose a key component of what makes Ellsworth distinct and attractive to visitors and residents. The city needs to inventory and value its historic buildings, and through a housing study it needs to examine other options to address and get ahead of the challenges associated with them. Citizens felt that unless the city tackles this issue with a commitment to preserving heritage housing stock (and doing so in regular consultation with the Historic

Preservation Commission), a principal attraction of designated historic districts will soon evaporate in Ellsworth.

Recommendation L-39: Initiate a housing study for the city that involves community consultations and includes a regional housing inventory, as well as updated data regarding local housing market trends; vacancy rates; projected growth and demands for specific types of housing; the impacts of current and potential public transit on housing needs; and the affordability, age, and location of housing stock. Consideration of the way in which current housing does or does not contribute to the character of neighborhoods and districts and the potential for future housing to contribute to infill and a more form-based approach to city planning should also be addressed in this study.

Recommendation L-40: Develop a proactive approach to preserving Ellsworth's historic housing stock that incorporates an inventory of the city's historic buildings as well as programs, incentives, and regulations to facilitate long-term maintenance of the buildings as well as their desirability and affordability for owners.

H. Private Stewardship

As noted earlier in this chapter (in Section II.E), the city and local land trusts own just a small fraction of Ellsworth's total land area. The vast majority of land in Ellsworth is privately owned residential and commercial property. If our goal and objectives with respect to green land use are to be realized, then private property owners will need to understand how they can contribute to this effort and be motivated to do so. Changes to zoning and ordinances, as discussed in the previous section, along with enforcement of those regulations, is one way to motivate good stewardship on private property. However, a more effective approach to cultivating good stewardship for a broader cross section of the community will be to provide a range of educational materials and programming regarding the various ways that property owners can contribute to greening efforts.

This material should include information about tax abatement programs (e.g., Open Space, Tree Growth, and Farmland) and the process of formally conserving land or granting easements. It should also include lists of recommended native plant and other functional species, as well as lists of invasive plants to be avoided. Practical workshops

and programs can gradually make residents and business owners more aware of a broad range of topics, from landscaping for wildlife, alternatives to lawns, and creating rain gardens and bioswales to planting a vegetable garden and organic practices to avoid the use of toxic chemicals. Some of this education can take place in the schools, so that students will pass it on to their families as well as learn to be responsible stewards of the land themselves.

Special sales such as those organized by the Ellsworth Garden Club, Master Gardener volunteers, and the Hancock County Soil and Water Conservation District can make desirable plants available for reasonable prices. Recognition for exceptional stewardship and financial incentives and assistance to individual property owners and nonprofits can also be effective in encouraging them to maintain green spaces that strengthen the city's green infrastructure, benefit the public, and enhance our environmental footprint.

Recommendation L-41: Develop educational materials and programming to cultivate good stewardship of the land by Ellsworth businesses, nonprofits, and residents.

Recommendation L-42: Create mechanisms for recognition and other incentives for exceptional stewardship.

I. Community Access and Engagement

A recurrent theme throughout this chapter has been the demands of green planning participants for more access to a diversity of green spaces. This input was not provided without acknowledgement of the potential financial implications and the finite limitations of Ellsworth's tax base. However, many of our recommendations offer the potential for substantial grant funding, which could augment the financial resources of the city or nonprofit partners taking responsibility for particular recommendations. Additionally, green planning participants expressed interest in actively contributing to greening efforts as volunteers. The six subcommittees and other individuals who contributed to this chapter—among them professional conservationists, an arborist, a landscape architect, a land-use planning expert, a teacher, professors, and academic researchers—are an indication of the level of volunteer expertise that has already been devoted to this effort. In each of our community consultations, presentations, and other public events, we have

acquired a further list of people who want to assist with Green Ellsworth's Land Action Team, specific green spaces, urban and rural forestry, cemetery preservation (especially historic cemeteries such as the Old Burial Ground), citizen scientist projects, new public landscaping or green infrastructure, and certainly the new waterfront park and refurbished River Walk. The Ellsworth Garden Club and Frenchman Bay Conservancy, both of which have committed to addressing Green Plan goals, have a successful history of cultivating their own committed volunteers and will certainly engage Green Ellsworth volunteers in their projects.

Similar efforts on the part of the city will be important for improving the care of city-owned green spaces and furthering other initiatives recommended in this chapter. Ellsworth has a history of using volunteers through partnerships with the Ellsworth Garden Club, Frenchman Bay Conservancy, the Rotary, and Master Gardener volunteers. It needs to do this more strategically as part of its green spaces management plan. Even with the qualified city staff person already requested to develop and implement a green spaces management plan, the City of Ellsworth will need to secure and coordinate contracted professionals (e.g., lawn care, irrigation, tree care, trail builders, landscape design). However, nonprofit partners and individual community volunteers, including people with specialized expertise, will also be essential. This could begin with allowing more responsibility and engagement for commissions currently in operation and others that should be reactivated. The Harbor and Recreation Commissions are already doing this, although we recommend below that the latter be expanded to become the Parks and Recreation Commission. Alternatively, the Recreation Commission could remain as is and a Parks and Conservation Commission could be developed. Conservation commissions are specifically encouraged and provided for under Maine statutes, and one of their many functions is to support the development of comprehensive plans. Many municipalities in Maine have conservation commissions, and the 2004 Comprehensive Plan recommended that one be established for Ellsworth (p. II.21). If the city is serious about protecting its natural and working lands as well as caring more effectively for its parks and other public green spaces, setting up such a commission is imperative.[84] As

[84] For more information, see the Maine Association of Conservation Commissions, www.meaccme.org/maine-statute. Just a few of the municipalities in the Ellsworth area that have

previously recommended, the city should also reactivate the Arbor Commission and appoint a cemetery board (see Recommendations L-22 and L-28, respectively).

Recommendation L-43: Revise the terms of the Recreation Commission to include a focus on parks and green spaces as well as recreation, with the revised title of the Parks and Recreation Commission, or retain the Recreation Commission as is and create a Parks and Conservation Commission, as provided for by Maine statute.

Presently, nonprofits and individuals must navigate multiple city departments in order to volunteer their time or expertise to one or more of the city's green spaces. Often, these contributions are of a basic yet necessary nature, key to addressing a management task within a green space or site. We heard from one citizen who had repeatedly asked if they could clean up one of the city's deteriorating properties and was told directly that their efforts were not welcome. In contrast, many urban centers have developed very successful programs that encourage residents to take charge of local green spaces, thereby simultaneously lightening the maintenance load for city staff, cultivating a sense of cohesion, pride, and community within the neighborhood, and in some cases providing an alternative food source.[85] In other communities, businesses have organized their employees to make major volunteer contributions to public green spaces while also enhancing their connectedness to the community and among themselves.[86] Such programs require supervision and coordination, but in a city like Ellsworth, where all municipal departments are tiny, valuing and cultivating volunteers will be essential in addressing the city's green space needs and potential. The level of hands-on volunteer engagement generated by the green planning process is an indication of the untapped potential within the community.

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conservation commissions or committees are Bar Harbor, Brewer, Bucksport, Camden, Lamoine, and Rockport. In some cases, such as Rockland, a Parks and Recreation Commission performs some of the functions of a conservation commission.

[85] The National Recreation and Parks Association publications and website are full of examples of such engagement. See, for instance, Angela Larsen, "Greening Gary, IN from the Ground Up through Community Engagement," blog post Sept. 15, 2017, www.nrpa.org/blog/greening-gary-in-from-the-ground-up-through-community-engagement/; for an example of this type of engagement in Rockland, see https://donate.seedmoney.org/2832/rockland-community-farm.

[86] Kellie May, "Employee Engagement Boosts Community Cohesion," blog post Aug. 22, 2017, www.nrpa.org/blog/employee-engagement-boosts-community-cohesion/.

Recommendation L-44: Engage nonprofit organizations and volunteer groups more strategically to assist with supervising and maintaining the city's green spaces.

VI. Conclusion

As we drive around this patch of land we call Ellsworth, it is easy to take for granted or barely notice this precious resource. However, when businesses or developers search for and develop property that provides income and work for others and feeds our economy, they appreciate the dollar value of land. When realtors, buyers, and sellers of residential properties watch the fluctuations of asking and purchase prices, they understand the value to individuals and families of having a piece of land they call home. When trucks laden with logs or blueberry boxes roll through our city, or when we buy produce at our farmers' market, we understand the value of the products and livelihood that working lands connected to our traditional way of life have to offer. When we watch children kicking a ball along a playing field or dogs chasing each other across a field of wildflowers, we sense the value of play and recreation afforded by open spaces. When we visit a colorfully landscaped park alive with bees, butterflies, and birds, or startle a deer on a mossy forest trail leading to a vista of the river with an eagle perched in a tree on the opposite shore, we understand the value of a piece of public land to our mental and physical health and our quality of life. It is also then that, perhaps for a moment, we appreciate the interconnected network of living things that share and, with us, depend on this patch of earth we call Ellsworth.

For all these reasons, we need to value our city's land resources. In our public and private decision making, we need to be sure we are determining the best use of each piece of this finite resource to ensure that our diverse needs are being met and that the values of our land's multiple benefits are respected. Whether on public or private land, the citizens of Ellsworth are caretakers. We collectively hold this land in trust for future generations, who should be able to enjoy the same diversity of relationships with the land and as many of the benefits as present and past generations have. In particular, as the desirability of our rural way of life and the dollar value of our land continue to escalate, we need to appreciate all the more the corresponding increase in the value of conserved land, parks, and other public green spaces. Whether we represent city government or are private

residential and commercial land owners, we all need to understand our role as stewards of our land and our responsibility for maintaining a sustainable balance that situates our built infrastructure within a healthy natural environment.

CHAPTER 3

FOOD AND FARMING

I. Our Goal and Vision for This Resource

Food, water, and shelter are basic human needs that transcend all social and economic classes, and can be accessed in a variety of ways. One way is through agriculture. Agriculture produces food and, via fiber production, some forms of shelter, and is dependent on access to water. It is thus a foundational consideration for community sustainability. Because it places significant stressors on the environment and on natural resources, it is also a foundational consideration for environmental sustainability. Given that it involves such a complex web of human and natural resource interactions, agriculture ties into almost every aspect of sustainable community development and green planning. In particular, it ties into issues of land conservation (especially farmland conservation); water quality and availability; transportation (agriculture needs to get from farm to market, at whatever level that is occurring); water, wastewater, and waste management; and pollution (for example, as a source of fertilizer runoff and nonpoint source pollution).

As participants in the green planning process made clear, local agriculture is also part of a wider interconnected food system. In a regional context, Ellsworth has the most prime farmland soils, the most developed acreage, and the most lost prime farmland. While this isn't a surprise—given that Ellsworth is the largest community in Hancock County both geographically and in terms of population—it emphasizes that agricultural activities in Ellsworth have the potential to affect agricultural outcomes over a much larger area.

Our goal is to strengthen and promote a healthy food system in Ellsworth and our surrounding communities, so that everyone has access to healthy local foods and so that farming as a business thrives. To accomplish that, we recommend creating a 501(c)(3) leadership organization that can coordinate existing agricultural efforts, recruit stakeholders to participate in new initiatives, and facilitate decision making to achieve growth and change.

Our shared community vision is to support the food needs of our community in an equitable and sustainable way; to enhance local and regional environmental conditions and the natural resource base on which agriculture and the economy depend; to integrate natural biological cycles and controls whenever possible and encourage the best practices that result in a resilient food system; to sustain the economic viability of a diversity of farm operations in such a way that quality of life for everyone is improved; and to support opportunities related to new, health-promoting food systems. This is in alignment with the goals articulated in 2010 by the Academy of Nutrition and Dietetics, American Nurses Association, American Planning Association, and American Public Health Association.[87]

II. Why Agriculture Matters to Ellsworth's Sustainability

A. Eliminating Hunger

Food security is a foundational characteristic of a sustainable community. Given that food production is at heart an exercise in preventing food insecurity, then strengthening our capacity to respond to food insecurity is as fundamental a task as we can undertake in building a more sustainable community. In Maine, as elsewhere, the economic impacts of

[87] www.eatrightpro.org/practice/practice-resources/food-security-and-sustainability.

the 2020 coronavirus pandemic have had a devastating impact on hunger rates. Good Shepherd Food Bank, Maine's largest hunger relief organization, reports that overall food insecurity in Hancock County is projected to increase by 44% from 2018 to 2020, and to increase by 50% for children. This means that 29% of Hancock County children are projected to be food insecure in 2020 as a result of unemployment and rising poverty levels.[88] By working to eliminate hunger, we can help make our community healthier, more equitable, and more productive—in short, more sustainable.

B. Strengthening Our Economy

Local agriculture can play a role in the economic success of an entire region, as well as provide a vehicle for individual economic success. It is one branch of a many-legged economic infrastructure that includes all aspects of any food system—growing, harvesting, processing, packaging, transporting, marketing, consuming, and disposing of food. When farming as a business thrives, the benefits extend beyond the food system. The Ellsworth Farmers' Market, for example, is a clear economic success not only for the vendors, but for a wide array of other local businesses that benefit from the "spillover" of market shoppers.

C. Conserving Our Farmland

As noted in Chapter 2, Ellsworth residents have clearly articulated, for many years and through many avenues, that the city needs to protect its remaining natural areas and prevent sprawl in rural areas. If that goal is to be met, and if agriculture and its related activities are to be economically successful, then conserving our farmland is essential to building a more sustainable community.

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[88] www.gsfb.org/blog/2020/06/05/good-shepherd-food-bank-releases-hunger-projections-by-county/.

D. Combating Climate Change

While the focus of climate change mitigation has historically been in the energy and transportation sectors, attention has more recently focused on the potential for agriculture to contribute to mitigating climate change. Farmland vegetation plays a significant role in carbon storage, which keeps carbon out of the atmosphere. Healthy soils practices help build climate change resilience, increase water quality and quantity, and increase farmer profitability. A 2018 study sponsored in part by The Nature Conservancy determined that nature has the potential to remove 21% of the United States' carbon pollution, which is equivalent to removing emissions from every single car and truck in the country, plus some.[89] Closer to home, the Maine Climate Council estimated that "Maine's working forests, natural lands, and agricultural lands … capture around 13 million metric tons of CO2e per year, an amount equal to 75 percent of Maine's greenhouse gas emissions."[90]

E. Other Community Benefits

Local agriculture brings us closer to the cycles of seasons and of life, and helps foster community through the uniting agency of this universal need. Regardless of whether individuals are participating in growing food themselves or not, access to local agriculture provides many benefits. According to the United States Department of Agriculture (USDA), these include fresher food, trust in the integrity and quality of food purchased, access to unusual or heirloom varieties, conservation of local farmland and open space, and the possible reduction of fossil fuel usage and greenhouse gas

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[89] Jospeh E. Fargione et al., "Natural Climate Solutions for the United States," *Science Advances*, 4.11 (2018), https://advances.sciencemag.org/content/4/11/eaat1869; The Nature Conservancy, "A Natural Path for US Climate Action," *Perspectives*, Nov. 14, 2018, www.nature.org/en-us/what-we-do/our-insights/perspectives/a-natural-path-for-u-s-climate-action/.

[90] https://climatecouncil.maine.gov/strategies/lands.

emissions.[91] Such benefits have driven a growing demand for locally produced foods. Buying local can also help build relationships and dialogues between producers and consumers, and it can help reduce the use of pesticides, especially if there is local demand for that reduction. On the producer side, it can make consumers more aware of and responsive to producers' needs, such as access to farmland, clean water for irrigation, and markets, as well as other issues—in Ellsworth's case, for example, the need for a secure, indoor, year-round farmers' market space.

III. Guiding Principles and Objectives

In order to achieve our overall goal and vision for food and farming in Ellsworth, we first established some guiding principles and objectives which have informed our analysis of current conditions and framed our recommendations.

A. Guiding Principles

• No one in a sustainable community should go hungry. Preventing hunger as well as responding to it must be community priorities.

• A successful food system involves a network of interrelated interests, and it should be a defined, recognized community. To ensure this, there needs to be extensive collaboration among all the stakeholders in our food system.

• The ability to provide basic foundational support to farmers and gardeners—whether in the form of education, opportunities, or skills—is key to ensuring a healthy food system. A substantial amount of support is available, but there is an overriding need to coordinate and promote it.

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[91] Debra Tropp, "Why Local Food Matters: The Rising Importance of Locally-Grown Food in the U.S. Food System," National Association of Counties Legislative Conference, Mar. 2, 2014, www.ams.usda.gov/sites/default/files/media/Why%20Local%20Food%20MattersThe%20Rising%20Importance%20of%20Locally%20Grown%20Food%20in%20the%20U.S.%20Food%20System.pdf.

• Municipal support for agricultural activities is essential for building a healthier and more sustainable food system.

• Because agricultural interests in Ellsworth are embedded in and affect activities that occur regionally, we must consider Ellsworth's food and farming issues in a regional as well as municipal context.

• Existing agricultural challenges will only become more challenging in the face of climate change. Healthy farmlands and farming practices can help build climate change resilience.

• Prime farmland must be conserved.

B. Objectives

• To ensure universal food security and adequate nutrition.

• To strengthen our food system in ways that support and build ties among all stakeholders, locally and regionally.

• To enhance municipal support for agricultural activities in Ellsworth.

• To develop a "central clearinghouse" mechanism to promote all existing agricultural resources.

• To promote research about agricultural best practices that mitigate climate change.

• To conserve our farmlands and protect their quality, as well as to disincentivize the development of prime farmland soils.

IV. What Is Working

This section describes the factors that currently exist to support improving agricultural efforts in the Ellsworth area. The information here is primarily explanatory; lists of resources are confined mostly to footnotes.

A. Our Farms and Farmland

The history of Ellsworth suggests that there are no significant physical challenges to farming and gardening in the area, although certain geographic areas may be more productive than others.

According to historian Todd Little-Siebold at College of the Atlantic, Ellsworth traditionally operated under an agricultural economy. Every family fed itself from a family farm, and often grew the wood that heated their home in winter. Some also supported the local agricultural industry as local or regional food producers. Those who operated farms as primary sources of family income often had ties to other local industries, either in the winter months or by having family members integrated into one or more of the other primary area industries, such as fishing (whaling) and logging. These interconnections helped cement agriculture as part of the larger regional economy.

Today, the assessor's office reports that as of 2018 Ellsworth has 25 parcels enrolled in the state's Farmland taxation program.[92] The city's total acreage in the Farmland program, not including woodland enrolled in the Tree Growth program, is approximately 307 acres, out of 50,696 acres of land within city boundaries. This means that formally recognized farmland occupies 0.6% of Ellsworth's total land acreage. This is a tiny fraction, particularly given that prime farmland soils and soils of statewide importance[93] are prevalent within the city's boundaries, as shown in Figure 3.1.

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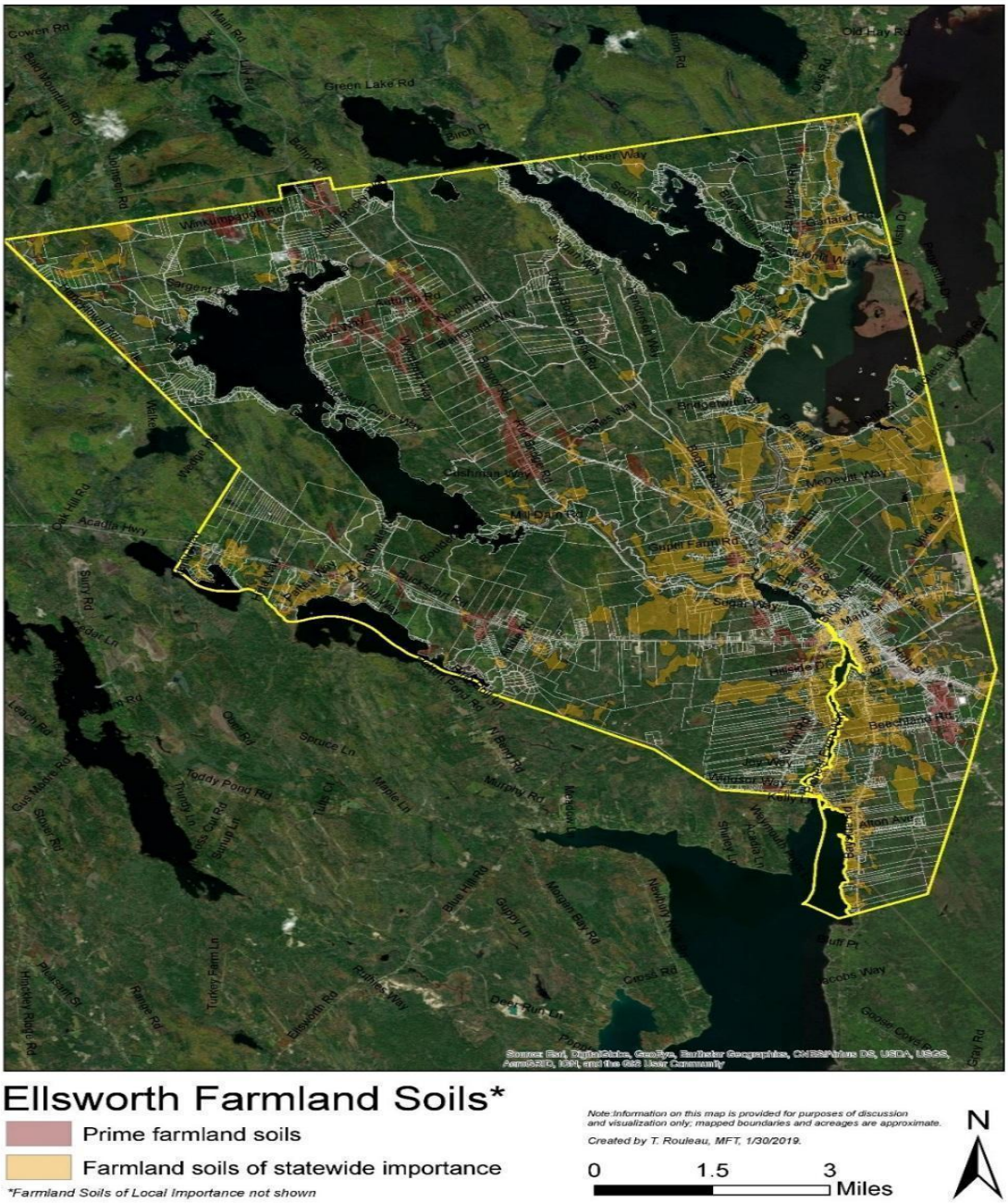
[92] Farmland is one of Maine's four "current use" programs whereby property owners can reduce the assessed value of their property for tax purposes. The Farmland program requires that a parcel comprise at least 5 contiguous acres and provide at least $2,000 gross income a year from farming, agriculture, or horticulture. For more information see www.maine.gov/dacf/ard/farmland_protection/farmland_tax_law.shtml.

[93] According to Natural Resources Conservation Service representative and Food and Farming Action Team member Christopher Phinney, prime farmland soils are "considered the most productive in this county for the widest range of agricultural use, whether mixed vegetables, blueberries, pasture/grass or other; in my opinion these soils are the most important to conserve for future agricultural use and protect

Figure 3.1: Prime farmland soils and soils of statewide importance



against development. In their natural state, these soils have good texture, structure, water characteristics (infiltration, holding capacity, availability for plants, etc.), are more easily worked/tilled/planted, less stony, and produce higher crop yields with less manipulation." Soils of statewide importance are "well suited to production of a wide range of crops as well and in some cases are the same soil types as the Prime soils and differ only with slope…. These soils may need more manipulation to increase productivity, but are still fairly productive in a natural state, or require lower inputs."

Table 3.1 shows what percentage of prime farmland soils exist within city boundaries and where these soils are located in terms of zoning district. Figure 3.2 depicts this information visually.

Table 3.1: Prime farmland soils in Ellsworth, by zoning district

Zone	Prime soil acres	Percent of all prime	Total zone acres	Percent prime per zone
(C) Commercial	148.3	8.4%	800.3	18.5%
(CP) Commerce Park	4.0	0.2%	27.1	14.9%
(DW) Drinking Water	688.9	39.1%	1,0616.4	6.5%
(N) Neighborhood	188.8	10.7%	3,402.6	5.5%
(U) Urban	103.2	5.9%	2,680.6	3.8%
(R) Rural	593.6	33.7%	25,114.2	2.4%
(SP) Stream Protection	12.7	0.7%	771.4	1.6%
(RP) Resource Protection	9.8	0.6%	1,001.7	1.0%
(LR) Limited Residential	9.7	0.6%	2,454.6	0.4%
(DP) Drinking Water Protection	1.1	0.1%	963.0	0.1%
(WT) Wetlands	0.6	0.0%	1,946.0	0.0%
(WA) Water	1.9	0.1%	9,449.4	0.0%

(BP) Business Park	0.0	0.0%	113.6	0.0%
(DT) Downtown	0.0	0.0%	221.7	0.0%
(GD) General Development	0.0	0.0%	71.7	0.0%
(I) Industrial	0.0	0.0%	511.3	0.0%
	SUM: 1,762.5		SUM: 60,145.7	

[a] All figures are estimates, and there is a margin of error due to the methods used to estimate them.

Fig. 3.2.: Prime farmland soils in Ellsworth, with zoning overlay

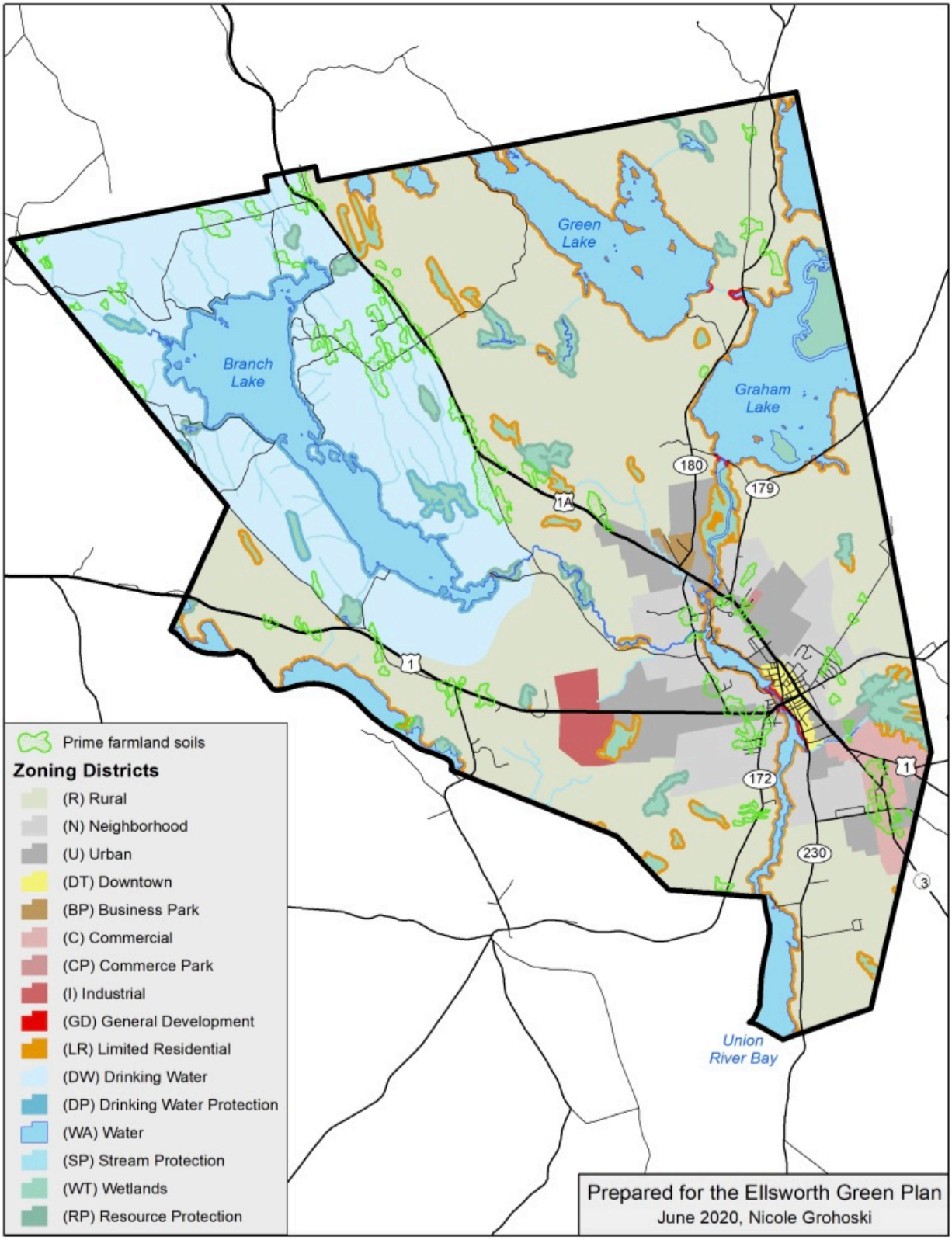


Table 3.2 shows information about land use in Ellsworth and the surrounding communities, using acres of prime soils as representative of farmland and acres of impervious land as representative of developed area.

Table 3.2: Land use in Ellsworth and surrounding communities

TOWN	Total Acres Prime Soils	Acres Impervious Developed	Percent Impervious Prime Soils
Ellsworth	1751	310	17.7%
Orland	1254	160	12.7%
Hancock	1055	99	9.4%
Dedham	468	53	11.3%
Surry	412	29	7.1%
Lamoine	365	36	9.8%
Mariaville	325	28	8.5%
Trenton	308	32	10.3%
Otis	94	8	8.5%
Grand Total	*6031*	*746*	*12.4%*

[a] All figures are estimates, and there is a margin of error due to the methods used to estimate them.

We used Web Soil Survey,[94] an online tool maintained by the USDA, to create additional data about soils in Ellsworth and its surrounding communities (see Online Support Materials[95]). This information is included to spark further investigation into the condition of prime farmland soils and soils of statewide importance in the region, and it has not been analyzed in the way that soils and zoning within the city boundaries have been. Web Soil Survey delineates an area in Ellsworth that it defines as an "urban area," and shows the distribution of soils there; this amounts to a magnified section of the maps shown in Figures 3.1 and 3.2.

The USDA defines prime farmland as "land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses."[96] That said, it should be kept in mind that even less desirable

[94] https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm.
[95] All Online Support Materials referenced in this plan can be found under the Green Plan and relevant action team or focus area pages at www.greenellsworth.org.
[96] https://directives.sc.egov.usda.gov/viewerFS.aspx?hid=20135.

soils don't have to provide a barrier to agriculture if raised beds or sustainable soil-building practices are used, particularly in an urban homesteading situation. While we've examined soils in Ellsworth to help identify the best areas for agricultural practices, we have not considered soils in the city to be a serious barrier to farming.

B. Conservation of Farmland

Maine Farmland Trust (MFT) is a statewide organization dedicated to protecting farmland, supporting farmers, and advancing the future of farming; it is a key partner in reaching our goal of enhanced agricultural efforts in the Ellsworth area. MFT created the map in Figure 3.1, which helps provide clarity around which soils indicate priority conservation efforts. According to both MFT and the Natural Resources Conservation Service, prime farmland soils are the soils of greatest importance for conservation efforts in this area. MFT provides information about how to support local-level farmland conservation and how to disincentivize development of prime farmland soils, as well as providing recommendations regarding local-level governance supports for farming.

C. Municipal Support for Farmers and Farming

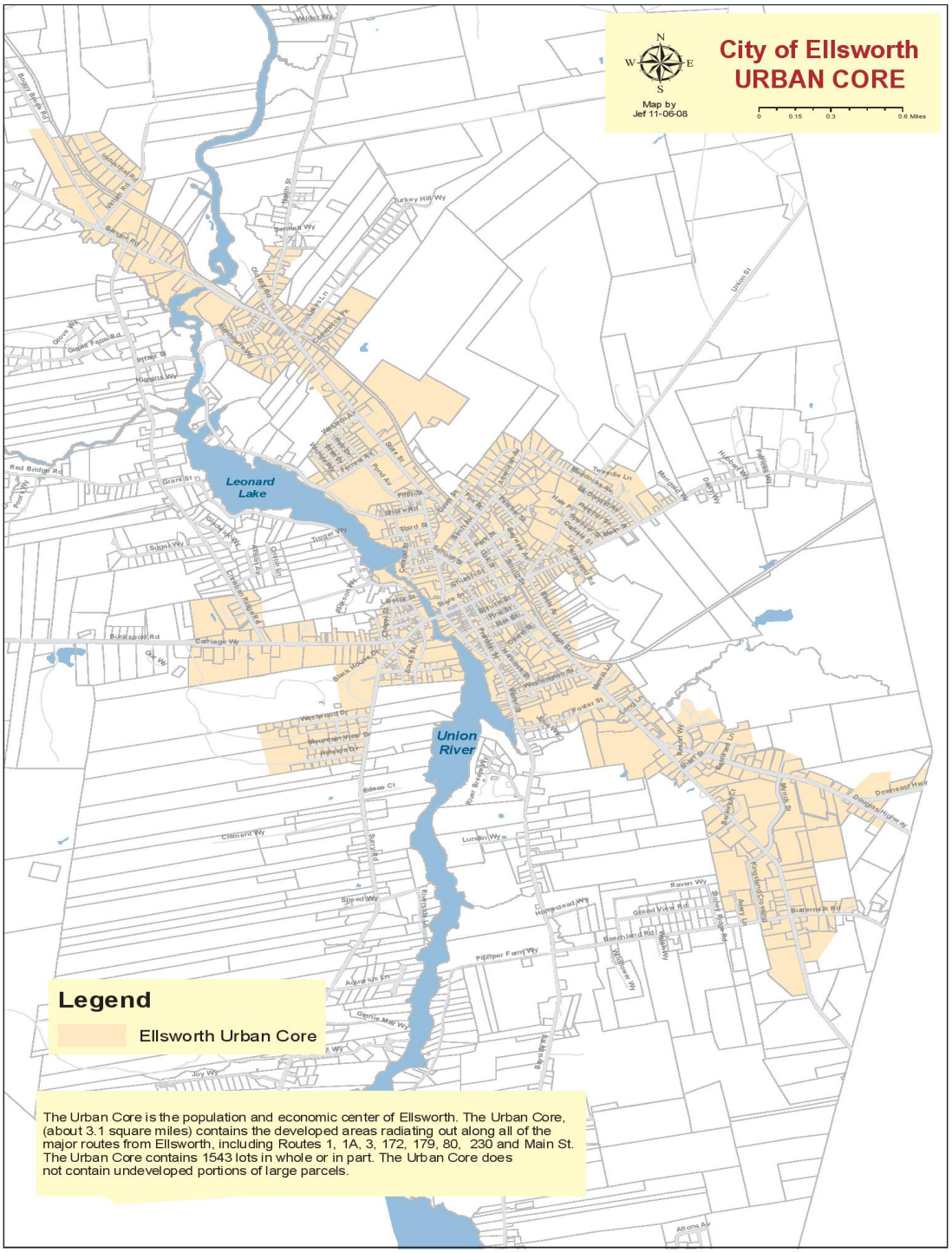
According to Maine Farmland Trust's "Farm-Friendly Test"—designed to help municipalities assess whether their ordinances, regulations, governance, and practices are farm-friendly—Ellsworth has not created any active barriers to farming and is fairly supportive of urban homesteading. The city's economic development director has encouraged Green Ellsworth to share the findings of this Green Plan in the upcoming comprehensive plan updating process, and the assessor's office says it proactively promotes tax breaks and other tax-based opportunities—including eligibility for enrollment in the Farmland and Open Space programs—to farmers whenever possible.

Other results of the Farm-Friendly Test are discussed in Section V.D, and a copy of the test results are in the Online Support Materials.

Ellsworth has a municipal composting facility (see Chapter 4 for more information), and the city has fairly permissive ordinances in place to support urban homesteading; existing language does not prohibit livestock in any location except in the Business Park and Commerce Park Zones. The only animals prohibited from the Urban Core,[97] shown in Figure 3.3, are roosters; most regulations are focused on maintaining hygienic conditions and basic standards to help reduce the possibility of animals associated with urban homesteading becoming neighborhood nuisances. There are no restrictions on gardening of any sort.

[97] Note that the Urban Core is not the same thing as the Urban Zone (shown in Figure 3.2) or the Department of Transportation Urban Compact Area (not shown in this plan).

Figure 3.3: Ellsworth's Urban Core



D. Combating Climate Change

Existing agricultural and community challenges will only become more challenging as climate change accelerates. Unpredictable and extreme weather will bring with it potentially severe impacts to food security, both nationally and globally, in terms of the amount and quality of food available, access to food, and global food prices.[98] Climate change also has the potential to destabilize other aspects of community security that could directly or indirectly affect agriculture. Among the potential impacts are reduced water supplies and changing patterns in water availability; unpredictable energy production and increased energy use; aggravations to unequitable economic development; new security concerns; and redirection of community resources on many fronts.[99]

In September 2019, Governor Janet Mills declared that Maine will be carbon-neutral by 2045. That same month, the legislature established the Maine Climate Council, whose six working groups are charged with helping Maine communities, industries, and people confront climate change.[100] Agriculture is addressed primarily by the Natural and Working Lands group, which has proposed several strategies that could be helpful in addressing many of our objectives relating to agriculture in Ellsworth and the surrounding area:

- Protection and conservation of working farms through a dedicated, sustained funding source to provide permanent protection for farmlands via conservation

[98] https://19january2017snapshot.epa.gov/climate-impacts/climate-impacts-agriculture-and-food-supply_.html#:~:text=Climate%20change%20can%20disrupt%20food,result%20in%20reduced%20agricultural%20productivity.
[99] https://19january2017snapshot.epa.gov/climate-impacts_.html.
[100] www.maine.gov/governor/mills/news/governor-mills-introduces-bill-establish-maine-climate-council-2019-04-30.

easements and fee acquisition, and revision of existing state and federal land conservation programs to include projects that store carbon, reduce greenhouse gas emissions, and prepare for climate change impacts.

- Financial incentives and technical support to farmers to help them prepare for climate change impacts through innovative land management, improved infrastructure, and natural climate solutions that increase carbon storage and reduce greenhouse gas emissions.
- Strengthening of Maine's food systems so that more food can be produced by Maine farmers and processed locally, distributed efficiently, and priced affordably.
- Prioritizing the retention of Maine's valuable working lands by supporting comprehensive, accurate, and timely review of land and water resources and project permitting under environmental regulations to ensure smart development, shoreland protection, and appropriate renewable energy project placement.
- Increasing climate education related to agriculture through public school curricula, consumer awareness, and landowner information.
- Strengthening research, development, and monitoring of working land practices by establishing the University of Maine as the coordinating hub for partnerships and research on forestry, agriculture, and natural land-related climate concerns in Maine, in order to reduce greenhouse gas emissions and prepare for climate change impacts.[101]

[101] https://climatecouncil.maine.gov/strategies/lands.

Several strategies proposed by the other five working groups may also contribute to our objectives for a healthier and more sustainable food systems network, and it will be important during the implementation of this plan for the Green Ellsworth Food and Farmers Action Team to align and integrate its efforts with these state-level initiatives.[102]

E. Addressing Socioeconomic Issues

a. Food Security

Food insecurity is measured by the USDA using two primary criteria: (1) lacking access to enough food for everyone in a household or (2) having access to calories but not to nutritionally adequate food. Another possibility is that a household has access to calories and adequate nutrition, but only sometimes. Food-insecure households may have to choose between important basic needs—such as rent, transportation, or medical bills—and food.[103]

Reducing or eliminating food insecurity involves a much more comprehensive range of efforts than simply providing food to hungry people; it also requires developing long-term strategies to ensure universal food security, which ties into much broader goals around community stability and equity. Attempting to create a comprehensive list of all the organizations in the Ellsworth area that touch on this topic would be overwhelming, so we refer in the footnotes only to those directly involved with providing food to the hungry.

Healthy Acadia and the UMaine Cooperative Extension co-convene the Hancock County Food Security Network (HCFSN), a quarterly meeting of food pantries, community meal sites, school backpack programs, and other service agencies, including WIC (the USDA's

[102] https://climatecouncil.maine.gov.
[103] www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/measurement.aspx.

supplemental nutrition program for women, infants, and children) and Good Shepherd Food Bank.[104] HCFSN focuses on networking and sharing successes and challenges among partners, professional development and training opportunities, and collaborative projects, such as the annual Hancock County Food Drive. Healthy Acadia and the UMaine Cooperative Extension additionally support several food-access efforts. These include the Downeast Gleaning Initiative, which collects food from local farms, markets, and gardens that would otherwise go to waste and then redistributes it to food pantries, community meal sites, WIC, health centers, Hancock County Drug Treatment Court, and other locations. The UMaine Cooperative Extension's Master Gardener volunteers grow produce specifically earmarked for food pantries, soup kitchens, and subsidized housing facilities. Eat Well volunteers teach food pantry clients healthy cooking and safe food-handling skills, as do SNAP-Ed nutrition coordinators housed at Healthy Acadia.

Some area schools are also creating school-based food pantries, and some healthcare settings have food cupboards that provide immediate relief to those who screen positive for food insecurity, as well as relationships with United Way and Meals on Wheels, which provide frozen meals for a limited time to discharged or vulnerable patients. Municipal offices may provide general assistance in the form of support for food security, and local hospitals are a source of valuable data on food security, through their participation in the triennial Shared Community Health Needs Assessment.

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[104] Other organizations and programs that work in Ellsworth and Hancock County toward food security include various local farmers' markets, Magic Food Bus of Healthy Peninsula, Senior Farm Share, Summer Meals Program, Maine SNAP-Ed, Maine Harvest for Hunger, Maine Harvest Bucks, Mainers Feeding Mainers, UMaine Cooperative Extension/Eat Well volunteers, and Maine Wabankaki REACH Community Food Service. For web links and more information about food security efforts, including local food pantries and meal sites, see our Online Support Materials.

b. Community Education and Outreach

Since 2012 the Ellsworth Garden Club has run a "Food for Life and Learning" program at all three Ellsworth schools. School gardens have been developed in each school, as well as an orchard at the Elementary Middle School and a passive solar greenhouse at the high school. At Hancock County Technical Center the garden is managed in conjunction with the culinary arts program, and at the Elementary Middle School sustainable growing practices and related nutritional education have been integrated into the K–12 curriculum. At the high school the gardens and greenhouse are managed through the extracurricular efforts of the school's "Green Team" and the Garden Club. There are anecdotal reports that some homeschooled children may be getting exposure to agricultural practices as part of their schooling curriculum as well. Maine Agriculture in the Classroom, now housed at the Department of Education, brings farming into participating classrooms, and the Maine Farm to School Network, in partnership with the Maine Farm to Institution Network, supports school-based agricultural integration as well.

In terms of strengthening the social acceptance of farming as an important and valued activity, community events such as Taste of Ellsworth and the Downeast Cider and Cheese Festival help build support for local farmers and food producers. The Downeast Cider and Cheese Festival, the only one of its kind in the state as of 2020, has garnered state and regional recognition. The event, developed in collaboration between Heart of Ellsworth and local resident and College of the Atlantic professor Todd Little-Siebold, features a small market and storytelling opportunities for local farmers to reach community members.

The UMaine Cooperative Extension conducts an annual four-month Master Gardener volunteers training, teaching Hancock County citizens the foundations of sustainable food production and ecological landscaping. Master Gardener volunteers work with Extension faculty to hold public gardening workshops, grow food for distribution to those in need, and maintain demonstration gardens as outdoor classrooms. Ellsworth demonstration gardens are located at the Hancock County Extension Office and at the community garden at Woodlawn Museum.

Healthy Acadia is developing a community garden, with plots for growing food, on Union River Estates, which provides housing assistance and related services to those in need. While the garden will not be open to the general public, it will serve the community located in this housing development and will complement the existing community garden at Woodlawn Museum.

Several other organizations also provide local programming and education about aspects of farm and garden development and maintenance.[105]

c. General Farmer Education and Business Opportunities

The green planning process revealed robust support for farmer education and outreach; funding opportunities for projects, farms, and gardens; and in general a fair amount of information about the business of farming and marketing-specific opportunities. This

[105] These include the USDA Farm Service Agency; Maine Farmland Trust; USDA Natural Resources Conservation Service; Maine Department of Agriculture, Conservation, and Forestry; Hancock County Soil and Water Conservation District; Maine Farm to Institution Network; Farm to Institution New England; Healthy Acadia; Healthy Peninsula; Hancock County Technical Center; Maine Organic Farmers and Gardeners Association; AmeriCorps/FoodCorps; Ellsworth Garden Club; St. Croix District of Garden Clubs; Garden Club Federation of Maine; Maine Farmlink and the Maine Supplemental Nutrition Assistance Program's Education (SNAP-Ed). UMaine Cooperative Extension offers many diverse programs, including Eat Well, Kids Can Grow, and Maine Harvest for Hunger, as well as workshops and online materials on agriculture and gardening-related topics: https://extension.umaine.edu/gardening/resources/.

includes detailed resources available through Maine Farmland Trust and the UMaine Cooperative Extension for farmer business planning and scaling-up efforts, and information from the Extension about health and safety requirements and restrictions that regulate getting food from producers to consumers.[106]

d. Opportunities for Strengthening Our Food System

There are many ways to strengthen a food system. Here we address a few of the approaches currently being pursued in Ellsworth and the surrounding area as well as at the state and regional levels, beginning with collaborative business and food-distribution efforts.

Food Hubs

Several types of food hubs have evolved locally to coordinate various aspects of the distribution and marketing of food while creating and meeting demands for fresh, locally grown food.[107] Providing a site or mechanism for aggregating the production from many smaller producers can help stabilize overall production volume and secure markets for smaller producers, thereby opening doors to opportunities that wouldn't otherwise be accessible. By providing access to markets for these smaller producers, food hubs can also increase the availability of fresh local and regional food for consumers, provide

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[106] https://extension.umaine.edu/beginning-farmer-resource-network/find-resources-and-assistance/managing-risks-and-farm-safety/ and https://extension.umaine.edu/food-health/food-safety/training/. Other sources of information relating to funding and other types of resources include the Ellsworth Garden Club, St. Croix District of Garden Clubs, Garden Club Federation of Maine, Maine Harvest Credit Project, US Small Business Administration, USDA, Maine Farmlink, Natural Resources Conservation Service, Maine Farmland Trust, MOFGA, UMaine Cooperative Extension, and Maine.gov. Information about national, state, and local regulatory requirements, including municipal ordinances and zoning laws, is provided by the following: Maine Farmland Trust/Maine Farm-Friendly Communities test, the Environmental Protection Agency, and the US Food and Drug Administration. Information about Maine state and local regulatory officials involved with food, animal feed, animal health, and food defense can be found at http://dslo.afdo.org/results/?unifyfda=1&bystate=1&q=Maine. For more specific links and further details, see our Online Support Materials.

[107] James Matson, Martha Sullins, and Chris Cook, "The Role of Food Hubs in Local Food Marketing," *USDA Rural Development Service Report* 73, Jan. 2013, p. 8, www.rd.usda.gov/files/sr73.pdf.

many services for the food system as a whole, and contribute to rural and community development.[108] Several food hub efforts are well established or emerging in the Ellsworth area:

- The Ellsworth Farmers' Market, located in the summer in the parking lot near Flex It Cafe and in the winter in the J&B Atlantic building (this may change going forward), is a prime source of local food. The winter market, and to some extent the summer market, is a partnership between the Ellsworth Farmers' Market (itself a partner in the Maine Federation of Farmers' Markets) and Heart of Ellsworth. The summer market has had a presence in Ellsworth for 10 years, whereas the winter market has existed only since 2018. Both markets are examples of successfully connecting local farmers to grant funding, business support, and promotion and advertising. Healthy Acadia provides volunteer support at the markets for Maine Harvest Bucks, a program offering nutritional bonuses for shoppers using the federally funded SNAP (Supplemental Nutrition Assistance Program). Both markets have been clear economic successes for the vendors; anecdotally, income generated at the 2019 winter market was 50% to 80% of the vendors' total farmers' market revenue. Farmers' markets reduce packing costs and the production of waste from this part of the food system, so they also address some of the objectives outlined Chapter 4.
- In addition to traditional farmers' markets, there are now online farmers' markets in the Ellsworth area, offering both producers and consumers another option for local food distribution. For example, Healthy Acadia operates MDI FarmDrop,

[108] For more information about the importance of food hubs, see www.rd.usda.gov/files/sr73.pdf.

and George Stevens Academy operates Blue Hill FarmDrop. These markets allow shoppers to order from several local farms and food producers, make one online payment, and pick up their order at a designated time and place.

- CSA (Community Supported Agriculture) programs are another example of alternative markets that help increase access to local foods. With a CSA, consumers typically pay for their food at the beginning of the growing season (although there are other models as well), thereby allowing producers to have a better sense of what their output needs to be. There are several CSAs in the Ellsworth area. Healthy Acadia and the UMaine Cooperative Extension are both good resources for information about them.
- Local producers also have some opportunities to sell their produce in larger area markets such as the Hannaford grocery stores, and an increasing number of local restaurants buy local produce.
- The Loaves and Fishes Food Pantry, several community meal programs, and other emergency food sources provide additional markets and distribution hubs, particularly for food that cannot be sold at traditional markets because it doesn't meet cosmetic standards or doesn't provide the return for farmers to make it worth packaging and transporting it to market.

State-Level Initiatives

At the state level, other initiatives are also strengthening our food system. Institutional food purchasing, by virtue of having a larger volume and therefore "footprint," has the potential to drive significant change in the markets of food systems. Institutions often pool their demand and can take advantage of economy-of-scale discounts; these larger,

coordinated orders benefit producers as well. For schools, state legislation passed in 2019 created a program whereby the state will provide $1 in matching funds for every $3 a school district spends on produce from Maine farms.[109] Maine Farm to Institution (MEFTI) helps institutions of all kinds develop strategies and systems for purchasing local food.[110]

In 2020, MEFTI and other collaborating organizations initiated the Maine Food Convergence, a project described as "bringing together a broad and diverse representation of Maine's local food networks to build greater connectivity and resilience within every corner of Maine's food system."[111] This includes helping coordinate efforts among various food system networks such as the Maine Food Strategy and the Maine Network of Community Food Councils, and increasing efficiencies by decreasing duplication across the state.

Regional Examples for Supporting a Strong Food System

Our neighbor Vermont offers examples of how to systematize and integrate statewide structures that support stronger agricultural communities. The state supports food hubs through the Vermont Agency of Agriculture, Food and Markets, including a system of regional food centers devoted to making local food easily available, abundant, and affordable.[112] Through its Universal Recycling Law, Vermont has also addressed the

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[109] Claire Murphy, "Maine Legislature Tackles Food Insecurity," *Times Record*, July 12, 2019, www.pressherald.com/2019/07/12/maine-legislature-tackles-food-insecurity/.

[110] Farm to Institution New England provides information about the benefits of institutional purchasing and guidelines for implementing it; see www.farmtoinstitution.org/sites/default/files/imce/uploads/1-Toolkit%20for%20Institutional%20Purchasers%20Seeking%20Local%20Produce%20thru%20a%20Distributor%202013.pdf and www.farmtoinstitution.org/food-service-toolkit.

[111] www.mainefarmtoinstitution.org/maine; for more information see www.mainefoodconvergence.org.

[112] Links for more information include the following: https://agriculture.vermont.gov/businessdevelopment/business-planning-technical-assistance/working-food-hubs-distributors; www.vtrural.org/sites/default/files/FoodCentersPlatform809.pdf;https://cswd.net/about-cswd/universal-recycling-law-act-148/.

processing of food waste by stipulating that rather than depositing food in landfills, businesses and residents must either give it to "a donation program, a farmer for livestock feed, and/or a composting or anaerobic digesting facility."[113] After a phased introduction of the program, as of July 2020 all food scraps from businesses or residents have been banned from landfills. While the primary objective of this legislation may have been the elimination of landfills, one of its effects has been to improve the efficiency of the food system and underscore its necessarily circular nature so that composted food waste can in turn feed and rejuvenate the soil for sustainable food production.

V. What Is Not Working

A. Overarching Considerations

Historical Lessons

According to Todd Little-Siebold at College of the Atlantic, the historical success of the agricultural economy in the Ellsworth area (described in Section IV.A) was eventually overwhelmed by competition from markets in other parts of the country and the world; the process was hastened by the collapse of services such as the railroad industry and by cheap transportation options. As the economy shifted toward manufacturing, and most recently the service sector, family farms disappeared, along with the agricultural infrastructure. The 25 farms enrolled in the Farmland program in Ellsworth as of 2018 represent a small fraction of the diversity of farms that existed at one time.

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[113] The Universal Recycling Law (Act 148) was passed unanimously by the Vermont Legislature in 2012. It imposed a statewide food management law, in the form of phased-in landfill bans, including for food scraps. The law first came into effect in 2014 for "businesses generating over 104 tons of food scraps per year … In 2015 that ceiling dropped to include those who generate more than 52 tons per year," and the phase-in continued until the outright ban came into effect in 2020. See https://cswd.net/about-cswd/universal-recycling-law-act-148/#:~:text=In%202012%2C%20the%20Vermont%20Legislature,the%20concept%20of%20waste%20itself.

Looking back at the historical success of agriculture in our area, it is clear that a thriving agricultural economy, to whatever extent we can and want to recreate this today, will need to integrate pieces of other economies to be successful—although this may happen naturally as a result of growing a healthy food system. We must also remember that, as Professor Little-Siebold has said, "It took 140 years for the farming economy to collapse. We have to be prepared to think really long term" when thinking about recreating a local farming economy. However, in the time that it took for the farming economy to collapse, our regional and state population has increased significantly, and locally grown food has rebounded in the value placed on it by individual consumers, restauranteurs, and global sustainability advocates. With these changes, transporting farm products to large centers hundreds of miles away becomes less problematic—or even an objective—and the unrealized potential for the local farm economy has increased. Most immediately, the experience of the coronavirus pandemic has taught us that cultivating a thriving local food and farming sector may be both essential to our sustainability as a region and a means of capitalizing economically on one of the most neglected assets of our comparatively rural region.

The Need for a Leadership Organization

Our success in addressing the many challenges to improving agriculture in Ellsworth will depend on creating a leadership organization that will seek out and coordinate the multitude of existing programs and supports offered by other agricultural and food-related organizations; that will identify and fill in gaps that currently weaken our local food and farming systems; and that will advocate at local, state, and federal levels for greater recognition of the benefits of cultivating an integrated food producer–consumer

network and for measures to strengthen that network. We see a 501(c)(3) organization modeled on those already existing in other states such as Vermont as being critical in successfully realizing many of the recommendations in this chapter (see the table of recommendations in Appendices 1 [for a succinct list] and 2 [for a more detailed list] for which this organization will be responsible). Currently, the missions of our stakeholder organizations either do not address many of these recommendations or they lack the kind of comprehensive, intensive support needed to move such recommendations forward in a significant and measurable way. In particular, we envision that over time this new 501(c)(3) organization will effectively tackle recommendations relating to three key strategies:

1. Identification and coordination of the programs and resources currently offered by a multiplicity of government, nonprofit, educational, and commercial organizations relating to food and farming, with an effort to guide and educate both food producers and consumer-oriented businesses and organizations so that it is easier for them to take advantage of available opportunities.
2. Initiation of actions to fill many of the gaps in the system that are not currently being addressed by other organizations. These actions would involve taking direct responsibility for new initiatives (e.g., creating an economic incubator for farmers and other food-related businesses or a state-supported food distribution hub); working in partnership with other organizations to improve the system (e.g., promoting more-comprehensive institutional food purchasing; fostering stronger connections between farmers and children) and encouraging and supporting other organizations to

proactively address local needs (e.g., conservation and reclamation of more farmland; coordination and promotion of technological solutions to reduce food waste).

3. Advocacy for the important role of farming and food-related businesses in the local economy and sustainability of the region, for the need to foster a more effective and equitable food system, and for policies and procedures to strengthen the food system. At the local level this would involve zoning and ordinance changes to better support agriculture and urban homesteading; at the state level, food-management legislation and support for local food hubs; and at the federal level, revision of food-regulation laws and reduction of regulatory barriers, to better support small farmers as well as a local USDA-certified slaughterhouse.

The development of this nonprofit will take time. In the interim, Green Ellsworth's Food and Farmers Action Team should provide direction in bringing key stakeholders together to create this organization and to initiate some of the longer-term initiatives identified in this plan and ensure that they are embedded in the missions of food- and farming-specific organizations.

Recommendation F-1: Create a 501(c)(3) leadership organization, referenced within this plan as the Downeast Food Hub (DFH), to further the recommendations in this chapter.

B. Our Farms and Farmland

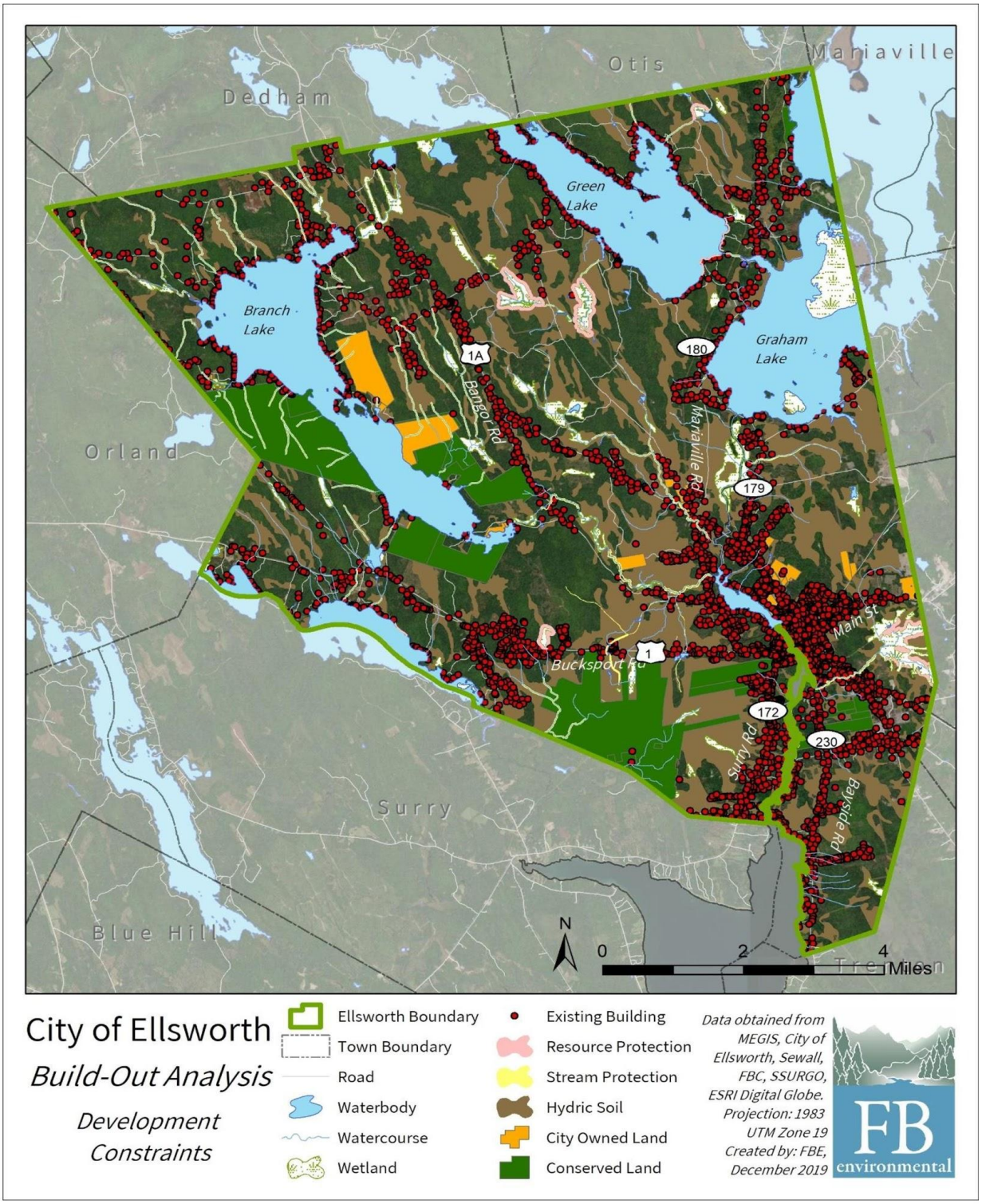
The USDA's Farm Service Agency (FSA) has good, easily obtainable county-level data about crop production and acreages, but this information does not help us assess food production specifically in Ellsworth and the surrounding areas. What kinds of foods are currently being produced, and in what amounts? What has been produced historically? A Freedom of Information Act request from the FSA for local-level data about crop

production and acreages yielded only the following information: in the Ellsworth area, including the bordering towns, there are nearly 500 acres planted in blueberries and about 114 acres planted in hay or pasture. Our goal in obtaining this information was to cross-reference data about what is being produced against soils and city zoning, to create a general picture of how effectively Ellsworth-area farmers are using farmland soils, and to develop a better picture of capacity. With the level of information provided by the FSA, we haven't been able to address these questions. This missing data is critical to identifying business opportunities and to effective planning moving forward.

Recommendation F-2: Inventory area farmers, other food producers, and business owners to create a baseline picture of food production and needs.

The greatest percentages of Ellsworth's prime farmland soils are found in the Drinking Water and Rural Zones (39.1% and 33.7%, respectively), which are also the city's largest zoning districts (see Table 3.1). The Neighborhood and Commercial Zones have the third and fourth highest percentages (10.7% and 8.4%, respectively). Particularly in the Commercial Zone, a relatively large amount of prime farmland soils is found in a zone of both limited overall acreage and high development. The Commercial Zone has the highest percentage of prime farmland soils per zone: 18.5%. Figure 3.4 illustrates how much of the Commercial Zone has presumably been lost to farmland conservation. (The Commercial Zone is located near the lower right corner of the city boundaries; see Figure 3.2 for a clearer delineation of it.)

Figure 3.4: Development constraints (including existing buildings) in Ellsworth



This visual overview of development on prime farmland soils in one city zone serves as a caution regarding the negative impacts that can result from excluding farmland protection in city planning decisions. (Also see Figure 2.1, which shows both existing buildings in Ellsworth and buildings projected to be built.)

Recommendation F-3: Direct and restrict development in the Drinking Water and Rural Zones in such a way as to take into account desired farmland protections.

C. Conservation of Farmland

To improve agriculture in the Ellsworth area and to achieve the goals described in this chapter, prime farmland must be conserved. Unfortunately, we have no data on how much of the Ellsworth area's prime farmland soils are currently protected under any conservation easements (whether farmland protection easements or not); this is critical missing information. According to representatives from Maine Farmland Trust and Frenchman Bay Conservancy, there are no farmland-specific conservation easements in Ellsworth at this time.

Recommendation F-4: Collect data to assess how much of the Ellsworth area's existing prime farmland soils are protected under any easements, in order to build a baseline of protected prime farmland soils.

Recommendation F-5: Coordinate efforts to protect farmland through a collaboration of individuals, conservation-focused nonprofits, the city's Planning Department, and the Planning Board.

For nonprofits as well as individuals, there are obvious as well as subtle barriers to farmland conservation. Frenchman Bay Conservancy and Maine Farmland Trust, for example, have both observed a lack of interest expressed by famers looking for farmland

or conservation-protected farmland in Ellsworth, and a lack of active farmland within city boundaries. The small size of the farms that do exist within the city can also be a barrier to conservation, as easements may make less financial sense for smaller farms. Another barrier shared by a local farmer is the lack of active efforts to canvas farmers to determine their long-term plans for their farm and if they have any interest in placing a conservation easement on their land, to preserve the property as farmland for the future.

Recommendation F-6: Connect farmers looking for land with farmers looking to sell their land, and farmers looking to sell their land with local conservation organizations.

D. Municipal Support for Farmers and Farming

Municipal support for farmers and farming can take many forms. Recommendations related to zoning and to conservation of farmland, for example, have been discussed in Sections V.B and V.C, respectively. Here we discuss myriad other actions to support agricultural interests and to promote farms and farmers as vital elements in our community identity and sustainability.

The needs for a permanent home for the farmers' market and for more community gardens are examples of agricultural projects that continue to draw public support and that have been discussed for many years. Both of these goals were listed as priorities in the 2004 Comprehensive Plan (which failed to acknowledge that a community garden already existed at Woodlawn Museum). However, no additional community gardens nor a permanent home for the farmers' market have yet been achieved. There are many ways in which the city could provide stronger support for these and other agricultural projects. Creating a sustainability manager position would help provide municipal officials with

access to information about agricultural best practices in the city. In the meantime, this Green Plan can provide information as well.

Recommendation F-7: Appoint a sustainability director for the city, to address the need to move the city forward in its sustainability goals. This is in line with the actions of other, more proactive cities in the region.

Recommendation F-8: Plan a presentation for city councilors and the Planning Board that provides the recommendations in this chapter in a condensed format.

The effort to find a permanent home for the farmers' market is now being led by local businesses and nonprofits—among them Heart of Ellsworth, Frenchman Bay Conservancy, Healthy Acadia, Ellsworth Farmers' Market, and Green Ellsworth—with support from the city. Heart of Ellsworth has been providing support for both the summer and winter markets, in preparation for the development of a year-round, permanent market home.

There is significant community support for additional community gardens and for improvements to the farmers' market, but these actions need coordination among farmers and between farmers and the city to be effective. The creation of a year-round farmers' market will require a feasibility analysis, which will provide valuable data about opportunities for the expansion of agricultural businesses. Other farmers' markets have been tried in our area and have been less than successful (maybe because of location, timing, or other factors), whereas other seasonal and year-round farmers' markets have been extremely successful. In partnership with Healthy Acadia and the Ellsworth Farmers' Market, the Downeast Food Hub could initiate research on factors contributing

to the successes and failures of other farmers' markets, with the intention of strengthening the future of Ellsworth's farmers' market.

A small-scale local project that has been successful in a nearby community is an Edible Main Street; this could be undertaken in Ellsworth in coordination with the Ellsworth Garden Club or other stakeholders.

Recommendation F-9: Identify opportunities to develop additional community gardens.

Recommendation F-10: Provide coordination between the city, local farmers, and the farmers' market to strengthen the market's role in the city's economic and cultural fabric.

Recommendation F-11: Research factors contributing to the successes and failures of farmers' markets in the Ellsworth area and elsewhere in Maine, with the objective of determining ways to strengthen Ellsworth's farmers' market and others in the region.

Recommendation F-12: Secure a permanent location for a year-round farmers' market in Ellsworth.

Recommendation F-13: Explore and facilitate the possibility of an Edible Main Street project.

The juxtaposition of an estimated 1,762 acres of prime farmland soils in Ellsworth—25% of which are located in the Commercial, Urban, and Neighborhood Zones—against current plans and potential for development highlights the need for strong municipal support for farmland protections and economic encouragement for farming during the next comprehensive plan update. Maine Farmland Trust's Farm-Friendly Test outlines how to develop and improve municipal conditions to support this.

Recommendation F-14: Use the results of Maine Farmland Trust's Farm-Friendly Test to help identify how to develop and improve municipal support, through zoning and

development restrictions, for farmland protections and economic encouragement for farming during the next comprehensive plan update.

Recommendation F-15: Advocate for adding agriculture to the next comprehensive plan update as a separate, detailed section with specific, measurable actions.

Maine Farmland Trust's Farm-Friendly Test revealed that, as of 2019, no farmers in the Ellsworth area were part of municipal decision-making groups. However, the nonprofit Heart of Ellsworth is involved with some of these groups, such as the Ellsworth Business Development Corporation, and provides strong advocacy for farmers and farming whenever possible. Heart of Ellsworth has identified a need to secure one or two people from the Ellsworth Farmers' Market to serve as the primary contact(s) between that organization and the city.

Recommendation F-16: Identify and recruit one or two people from the Ellsworth Farmers' Market to serve as the primary contact(s) between that organization and the city.

City staff have expressed a willingness to include farmers or farmer advocates on the Planning Board and the Comprehensive Plan Committee (when it is formed). It would also be strategic to add farming and farmer advocates to the Ellsworth Business Development Corporation. The Downeast Food Hub could help recruit individuals to join these groups.

Recommendation F-17: Recruit farming and farmer advocates to serve on the Planning Board, Comprehensive Plan Committee, and if possible, Ellsworth Business Development Corporation.

The 2004 Comprehensive Plan recommended expanding the sale of locally grown foods to area restaurants, by incorporating this goal into other city economic development strategies. Since 2004 some local restaurants have embraced the trend in their industry to use more locally grown food, but there is a long way to go before this becomes a dominant practice. In recent conversations, the city's economic development director has agreed that this would be a valuable objective to address, but it will be critical to provide stakeholder support for it during the upcoming comprehensive plan updating process.

Recommendation F-18: Expand the sale of locally grown foods to area restaurants by incorporating this goal into other city economic development strategies.

Another recommendation that was made in the 2004 Comprehensive Plan was to increase the likelihood that all farmland owners are aware of their potential eligibility for enrollment in the Farmland and Open Space taxation programs. As mentioned earlier in Section IV.C, the assessor's office does promote tax breaks and other tax-based opportunities to farmland owners whenever possible. During the upcoming comprehensive plan updating process, the city should consider making this a municipal policy, to ensure consistency through personnel changes and changes in administrative focus.

Recommendation F-19: Make the practice of promoting the Farmland and Open Space taxation programs to all farmers and landowners a municipal policy, in order to ensure consistency through personnel changes and changes in administrative focus.

Ellsworth's municipal composting facility (discussed in more detail in Chapter 4) is not producing certified organic compost, and its sources of material for composting need to

be expanded and diversified so as to remove more compostable materials from the general waste stream.

Recommendation F-20: Promote and help expand the use of the city's municipal composting facility, including the use of the compost it produces.

As noted in Section IV.C, Ellsworth has fairly permissive ordinances regarding urban homesteading. However, there may be room to create additional support for urban homesteading through strategic revisions based on successes in neighboring proactive communities. One possibility to explore is whether there is interest in adding a Local Food and Self-Governance ordinance.

Recommendation F-21: Revisit Ellsworth's ordinances to include more language that supports agricultural interests in general and urban homesteading in particular.

E. Combating Climate Change

Maine Farmland Trust (MFT) is leading the Maine Climate Table's Northeast Natural Climate Solutions Initiative (NCSI), in collaboration with the University of Maine, American Farmland Trust, Wolfe's Neck Center for Agriculture and the Environment, and other partners. As noted on the MFT website, "the project will analyze the potential regional and state-level benefits of wide-scale adoption of natural climate solutions for improved soil health, reductions in greenhouse gas emissions, improved water quality and quantity, increased farmer yields and profits per acre, and enhanced climate change preparedness. This research could inform and support state and regional efforts to incentivize these practices because farmers can and should be an integral part of addressing climate change in our region."[114]

[114] www.mainefarmlandtrust.org/why-the-northeast-natural-climate-solutions-initiative-matters/.

Recommendation F-22: Promote the results of the NCSI study to area farmers when the results become available.

F. Addressing Socioeconomic Issues

a. Food Security

In our modern society, food insecurity nearly always goes hand in hand with poverty; the unfortunate reality is that, while encouraging community gardens and urban homesteading can help eliminate food insecurity, maintaining a garden may be prohibitively difficult for individuals if their economic situation results in chronic stress that contributes to mental health or substance misuse or results in needing to work two or three jobs to pay for shelter, health care, and other expenses—leaving no time for the labor-intensive and relatively expensive tasks of gardening and urban homesteading. Preventing food insecurity requires a social investment in equitable economic conditions for all: providing food to the hungry is not the same thing as keeping them from being hungry in the first place. And it requires a shift in thinking away from simply responding to food insecurity, toward eliminating lines at food pantries, general assistance counters, and soup kitchens.

The nonprofit Prosperity Now provides data on the financial realities of communities across the United States in order to help build financial security and reduce poverty rates. Data from its website can help build a picture of how economically secure Ellsworth is.[115] According to Prosperity Now, 7.1% of Ellsworth households during the period

[115] Note that the data are dated. One of the issues with many public health studies is that data are often aggregated across several years, or reference situations 1–3 years prior to the current date. Most of the information referenced here from Prosperity Now is from the American Community Survey (ACS), for which the most recent data are 2018; however, the Prosperity Now analysis we reference here currently uses 2013–2017 ACS data. We aren't expecting big changes between 2017 and 2018 data, however; this provides at least a starting picture.

2013–2017 had incomes below the federal poverty level.[116] Statewide rates were considerably worse: 12.6% of Maine households had incomes below the federal poverty level during that period.[117]

For another perspective, we can look at statewide poverty rates across the country. For 2018–2019 (the most recent data from the U.S. Census Bureau), Maine was in the bottom half of all states, coming in 31st out of 51 states and territories. The rates for neighboring northeastern states show that Maine has models for improvement: New Hampshire ranked 1st (meaning it had the lowest number of households below the federal poverty level), Massachusetts 8th, and Vermont 17th.[118]

While Ellsworth's poverty rate was better than the state average for 2013–2017, some of the communities that were worse off are in Hancock County and thus are potentially part of our regional food security and agricultural picture. Bucksport, for example, had a 14.2% poverty rate,[119] significantly worse than the state or federal average during that period. Furthermore, considering only the poverty rate without looking at any other contributors to financial security paints an overly positive picture of economic conditions, given that Ellsworth also had:

- 10.1% of households with zero or negative net worth, compared with a statewide rate of 7.3% (2014 data)[120]

[116] https://scorecard.prosperitynow.org/data-by-location#city/2323200.
[117] https://scorecard.prosperitynow.org/data-by-location#city/2323200.
[118] www.census.gov/library/publications/2020/demo/p60-270.html. Retrieved Sept. 27, 2020. The table accessed was Percent of People In Poverty by State Using 2 and 3-year averages.
[119] https://scorecard.prosperitynow.org/data-by-location#city/2308780.
[120] https://scorecard.prosperitynow.org/data-by-location#city/2323200.

- 31.3% of households without enough liquid assets to subsist at the poverty level for three months in the absence of income—a staggeringly high number compared with a statewide rate of 16.0% (2014 data)[121]

The household zero net worth rate and liquid asset poverty rate are particularly concerning in light of the projected economic impacts of the coronavirus pandemic, which are already aggravating existing food security challenges.

Recommendation F-23: Conduct a robust analysis of wages, income, and employment patterns in Ellsworth and the surrounding communities, to create a baseline picture of economic strengths and weaknesses. This information is critical to improving food access and outcomes around food security, as well as for helping assess opportunities for agricultural expansion.

According to data from the nonprofit Feeding America, in 2018 there were nearly 7,000 food-insecure people in Hancock County, and the countywide annual food budget had an estimated shortfall of $4.6 million.[122] This means 12.4% of the county population was food insecure. While this was slightly lower than the state average of 12.9% (this may or may not be statistically significant), it was higher than the national rate of 11.5% that year.

In addition to the concerning factors already mentioned, two other things are noteworthy. One is that child rates of food insecurity are significantly higher in Hancock County than adult rates (19.2% vs. 12.4%); this translates to about one in five children in Hancock County being food insecure.[123] Of even greater concern is that averaged over 2017–2019,

[121] https://scorecard.prosperitynow.org/data-by-location#city/2323200.
[122] https://map.feedingamerica.org/county/2018/overall/maine/county/hancock.
[123] https://map.feedingamerica.org/county/2018/overall/maine/county/hancock

Maine was third in the nation, behind Mississippi and Louisiana, for very low food security,[124] indicating that we have a high rate of extreme hunger, in which individuals experience not only restrictions on the variety of foods and the nutritional value of foods available to them, but also restrictions on food quantity for all or part of the year. These two rankings—food insecurity and very low food security—are tracked separately. The number of Maine individuals suffering from extreme hunger rose between 2005 and 2019, with the state's ranking for very low food security jumping from tenth in the nation in 2005 to third in 2019. The current coronavirus pandemic paints an even grimmer picture for future food security, with Feeding America predicting that the worst impacts will be felt by children (see Section II.A).

Food pantries in other rural counties in Maine report that their use had been increasing dramatically even before the coronavirus pandemic—on the order of 150% to 200%. Assuming that pattern is repeated in Hancock County, it appears that the problem that food pantries were intended to solve in the 1970s, when the national food pantry infrastructure was established, has not been addressed. That said, the use of food pantries could also be replacing urban homesteading, as the rhythm, pace, and values of modern life shift.

We should not be simply responding to the existing food insecurity crisis. Rather, we need to proactively address it. We need to strengthen the resilience of our entire community by engaging all stakeholders (including those individuals experiencing food insecurity) in developing a more equitable and preventative approach.[125]

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[124] https://frac.org/maps/food-security/tables/tab1_foodinsecurity_2017_2019.html.
[125] See www.ipes-food.org/about/#.

Preventing hunger as well as responding to it must become a priority. The way we grow and distribute food must be empowering for all, across race, income, and gender.

Recommendation F-24: Identify opportunities to contribute to more equitable economic conditions through a more equitable local food system.

b. Community Education and Outreach

Although efforts are being made to strengthen connections between children and farming in the Ellsworth area (as discussed earlier in Section IV.E.b), there is more to be done. There may need to be a social shift that is, in part, a reversal toward seeing farming as a high-priority and high-value activity. Schools and local youth groups, such as the Girl Scouts and Boy Scouts, need to expose children to farming and gardening, and agricultural skills—including do-it-yourself and homesteading activities—could be better incorporated into community gatherings. UMaine Cooperative Extension's 4-H youth development program is a good model for this.

Recommendation F-25: Advocate for integrating farming and agriculture into the curriculum in all area schools, into the programming of local youth groups, and into community gatherings.

Despite there being a wealth of information about healthy and local foods in general, this information may not be reaching the population, or a large percentage of the population, that could benefit the most from it. Programs that help educate the public about healthy and local foods often depend on state and federal funding, which can change depending on administration priorities. Providing this education has to become a priority that unites sometimes conflicting political agendas (see also Recommendation F-36).

Recommendation F-26: Expand access to education about healthy and local foods.

Recommendation F-27: Advocate for the expansion of the existing healthy eating programs such as SNAP-Ed benefits and Eat Well at a statewide level, and by supporting smaller Ellsworth-area programs such as the Magic Food Bus with materials, funding, connections, or other resources.

There may be an opportunity to help expand Maine Farmland Trust's Farm Fresh Rewards program into Ellsworth businesses, but more research needs to be done.

Recommendation F-28: Assess whether there is an opportunity to help Maine Farmland Trust expand its Farm Fresh Rewards program into Ellsworth-area businesses.

There is an opportunity for the city to provide support for an existing, non–municipally driven event, the Woodlawn Field Days at Woodlawn Museum, the result of a collaboration among the museum, Healthy Acadia, College of the Atlantic, UMaine Cooperative Extension, and Ellsworth area and Hancock County schools. This event provides education about agriculture and about apple farming in particular. By supporting Heart of Ellsworth, the city already provides some backing for the Downeast Cider and Cheese Festival and the Taste of Ellsworth. Recommendations for municipal support for agricultural-themed events come directly from Maine Farmland Trust and a specific question on the MFT Farm-Friendly Test: "Does your town have a county fair, an apple festival, or an Old Home Day parade? Making agriculture visible to the general public helps establish the economic, cultural, and resource stewardship value of having active farms in a town."

Recommendation F-29: Advocate for stronger city support for the Downeast Cider and Cheese Festival and the Taste of Ellsworth, and explore possibilities for city support of Woodlawn Field Days.

c. General Farmer Education and Business Opportunities

The volume of information on this topic was somewhat surprising, given that one of the primary citizen complaints during the green planning process was a lack of available resources. The need here is thus for better promotion of existing supports—of which there are many, including assistance from Maine Farmland Trust and the UMaine Cooperative Extension for farmer scaling-up efforts—and to do it in a "central clearinghouse" way, so that access is easier. There are some exciting projects and collaborations occurring. However, unless there is a central location where these supports can be accessed, projects acknowledged, and additional resources allocated, then misaligned and misinformed efforts or competing interests may hamper progress. There is also a need for better education on how to make a CSA successful for the consumer, so that existing CSAs can better flourish. Anecdotal feedback has included complaints such as excessive amounts of any one vegetable for a single consumer or family, inconvenient pick-up locations or times, and unexpected costs. Coordinated education on how to provide better service for consumers should result in better returns for producers.

Recommendation F-30: Promote existing farmer education and business opportunity supports, including farmer education on how to help make a CSA successful for the consumer.

d. Opportunities for Strengthening Our Food System

There are many opportunities for strengthening our food system that have yet to be explored, particularly regarding development of a regional food distribution hub and strategies for institutional purchasing. Maine Farm to Institution (MEFTI) has shared that

food-purchasing-type inventories have been done in the Bangor and Portland areas previously; MEFTI may have resources and connections that would be helpful in creating a baseline assessment for food purchasing and distribution strategies in the Ellsworth area, and in planning future outreach and promotion around the benefits of these strategies. Healthy Acadia has connections with Ellsworth-area school cafeterias that buy local produce and may be able to share what its successes and challenges have been.

Recommendation F-31: Inventory food purchasing and distribution strategies used by producers and institutions in the Ellsworth area.

Recommendation F-32: Develop and implement a plan to support a regional food distribution hub.

Recommendation F-33: Promote the benefits of institutional purchasing to appropriate audiences and identify solutions to barriers.

Identifying markets for food is key to more efficient food transportation, not simply in the sense of moving food across highways for profit, but also in terms of identifying when food may go to waste and moving that food to appropriate consumers. There is technological assistance—such as programs like Spoiler Alert[126]—for trying to reduce the amount of food waste generated, by more efficiently moving food around a community or region. This technology leverages the power of the Internet to connect producers and consumers. Spoiler Alert or a similar program could be used in Ellsworth and the surrounding areas, but it would need leadership, coordination, and promotion.

Recommendation F-34: Identify barriers and opportunities to using technological supports to strengthen the connections in our overall food system.

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[126] www.spoileralert.com.

Recommendation F-35: Coordinate the use of technological tools (e.g., Spoiler Alert) to help reduce food waste.

One of the needs identified by the green planning process is the need for more farm-friendly governance. This need encompasses two specific goals: (1) a social shift toward accepting all levels of agriculture as business and (2) the elimination of regulatory barriers that make it difficult for small farms to compete. Advocating for a shift in social norming is likely to require a multilayered approach—one that combines educating youth as well as adults, pressing for changes in regulatory processes and in policies, and offering economic incentives. As such, the effort will touch on nearly every recommendation made in this chapter. At its heart is the idea of creating and launching a media campaign aimed specifically at changing perceptions of small farms.

Success in eliminating regulatory barriers will require cultivating support for policy changes at all levels of governance. The federal Environmental Protection Agency, the U.S. Food and Drug Administration, and state-level organizations such as the Maine Department of Agriculture, Conservation and Forestry all are involved in various aspects of this process. Our primary concern is that current laws and regulations are weighted toward big business. This situation must be reversed, or a new order created that makes it possible for small farms to compete in a marketplace that heavily favors businesses that have the resources to manage extensive and burdensome regulations as well as agricultural production and all the pieces that go into a food system after production. Because doing this, particularly at the state and federal level, would require changes to a status quo that has considerable monetary and legislative resources, a partnership among multiple organizations and state leaders all working toward this change is needed.

Recommendation F-36: Create and launch a media campaign to help increase positive perceptions of small farms as part of the local economy.

Recommendation F-37: Work at the regional and state levels to help eliminate regulatory barriers that make it difficult for small farms to compete.

There have been some positive developments supporting small to midsize livestock farmers. In May 2020, Congresswoman Chellie Pingree and Congressman Thomas Massie (R-Kentucky) introduced the PRIME—Processing Revival and Intrastate Meat Exemption—Act, described in a press release from Pingree as an effort "to make it easier for small farms and ranches to sell their locally raised meat."[127] As Pingree noted in the same press release, "Maine has more than 7,000 diversified small farms, and approximately 3,400 of these farms raise livestock." At the same time, and in the wake of the coronavirus pandemic, the state of Maine agreed to temporarily supply inspectors for three additional Maine meat processors, with the goal of making it easier for farmers to get meat to market. One of those temporary processors is located in Etna, and another in Alexander. Although both are about a 90-minute drive from Ellsworth, they are much closer than other facilities normally licensed for commercial slaughter. (A list of Maine's meat-processing plants is included in the Online Support Materials.) These temporary measures demonstrate the potential for greater access to locally grown meats if such facilities were available in the Downeast area and therefore were more cost-effective. The absence of commercial meat-processing facilities in Hancock and Washington Counties creates disincentives and barriers for Downeast farmers wishing to benefit from more diversified operations, and for local consumers wishing to access locally grown meat.

[127] https://pingree.house.gov/news/documentsingle.aspx?DocumentID=3373.

Recommendation F-38: Contact local representatives to support the bipartisan PRIME Act.

Recommendation F-39: Establish a state- or USDA-certified slaughterhouse with a level of accreditation that will adequately serve the commercial needs of Downeast farmers and consumers.

The Maine Department of Agriculture, Conservation and Forestry provides direct and indirect support for food security and food systems in Maine, but it is minimal, particularly compared with other existing regional examples. Two projects in Vermont that could be emulated in Maine are (1) implementing a statewide food-waste management law (see Section IV.E.d) and (2) providing state-level facilitation for food hubs. The specifics of what these two projects would need will require further study.

Recommendation F-40: Develop and implement a municipal food-waste management ordinance and advocate for a statewide food-waste management law.

Recommendation F-41: Advocate for enhanced state-level facilitation for food hubs.

VI. Conclusion

Existing efforts around food and farming supports in Ellsworth tend to be more or less siloed; this is a challenge to deep change. When positive and comprehensive change does manage to occur, those who have brought about change have focused on the needs or priorities of a small group of people driven by personal or organization-specific agendas (typically as required by their grant funders). This approach does not do enough to support achieving stability, equity, and sustainability, both socially and environmentally, in our community. This problem is not specific to Ellsworth—it is found across many communities and interest groups at all levels of society in the United States.

The creation of the Downeast Food Hub, whose primary purpose is to help create connections between agriculturally oriented organizations and to work with the bigger picture in mind, is an attempt to redress this, but it must also be noted that this Green Plan is itself an effort to find solutions to fragmented efforts across a wide range of sustainability initiatives. The recommendations in this chapter are all aimed at expanding access to our food system, making it more sustainable, and increasing both the social and environmental benefits we reap from it. Only by addressing these recommendations can we move Ellsworth and the Ellsworth-area farming community forward as partners in creating a model green community.

CHAPTER 4

Infrastructure

I. Introduction

This chapter addresses various aspects of the infrastructure (or built environment) that are important in supporting a sustainable and green Ellsworth into the future. Although numerous elements of a community can be considered "infrastructure," we focus here on three primary and interrelated elements of particular significance in addressing climate change and the integrity of our global ecosystems:

1. The transportation system, including the primary transportation corridors and their management and operation, private vehicle movement, bicycle and pedestrian considerations, and public transportation
2. Energy production, use, and conservation
3. Solid waste management

We discuss these three elements separately, in Sections III through V, respectively. Many other elements of the infrastructure (e.g., waterfront development, parks, stormwater management) are discussed elsewhere in this plan. Others (e.g., social infrastructure, information technology infrastructure), while vitally important, are discussed tangentially or are beyond the scope of this plan.

Our shared community vision is for our infrastructure to both enhance our community and encourage sustainable economic activities and growth.

II. Why Infrastructure Matters to Sustainability

The infrastructure elements discussed in this chapter are an integral part of any community. Transportation, for example, provides connectivity for the community (are vital parts of the community connected?) as well as helping shape future development. Likewise, energy and solid waste issues, at a minimum, provide parameters for green and sustainable growth.

III. Our Transportation System

We address transportation as an integrated system that must balance the demands of its various users and modes of transportation. This includes consideration of the types of

users, modes of transport, and transportation corridors in our city, as well as issues relating to the system's primary components: basic traffic management, public transportation, and pedestrians and bicyclists. We address several solutions to the city's traffic congestion as proposed by citizens, as well as related issues such as improved public transportation, walkability, bikeability, and accessibility.

In order to accomplish our goals for a sustainable transportation system, we recommend first and foremost that the city conduct a comprehensive transportation corridor study, to provide a blueprint for other projects going forward.

A. Guiding Principles

The guiding principles that frame the identification of Ellsworth-specific goals and a vision for the future of sustainable transportation in the city include the following:

• Transportation must be viewed as a comprehensive system that encompasses several modes of transportation and the perspectives of several user groups.

• The transportation system must be balanced among modes and users.

• The interactions among the transportation system and land use, development potential, quality of life, economic prosperity, and healthy ecosystems must be acknowledged and respected.

• Access to transportation is a social justice and public health issue. Limited access to transportation (e.g., among older residents, car-less residents) limits access to goods and services.

• The goals of the transportation system must be consistent with the goals in other areas of this Green Plan, and competing goals must be identified.

B. Overview of Our Transportation System

All levels of transportation problems have routinely been mentioned in almost every planning-related document for Ellsworth in the last several decades. These range from official documents such as the past and current (2004) comprehensive plans to the city's 2015 Visioning Project and, more recently (2017–2018), feedback from green planning participants.

What all of these documents and efforts underscore is that the seriousness of transportation issues varies widely and that their importance depends on the perspective of whichever user group is commenting. Identification of appropriate solutions and of

their level of urgency likewise depends on user perspective. In order to effectively address any transportation issues, regardless of user perspective, a system-level context needs to be established and individual problems, large and small, and their solutions must be fit into the broader system definition.

In addition to specific transportation issues such as congestion on High Street or the need for more and better sidewalks, the importance of transportation in promoting social justice and public health needs to be recognized. While most transportation issues revolve around trips that are being taken, the lack of travel opportunities for the transportation-disadvantaged (trips that are not being taken) must also be considered. Unequal access to transportation means unequal access to services, including health care. The value of good health care facilities, doctors' offices, and hospitals is diminished if clients cannot get to them. The availability of a balanced and effective transportation system is thus a social justice and public health issue. Similar access-related issues are important to continued and desirable residential and commercial growth.

Whether the existing transportation system does an acceptable job of accommodating the needs of the various user and interest groups in Ellsworth depends on which group is being considered. Most groups are being accommodated, but often not as well as they could, and should, be. As a general statement, if the transportation system is to help sustain the city, accommodate desired growth and development, and meet social justice goals, it is clear that we need to define a better way forward.

a. Types of Users and Modes of Transport

An important step in addressing transportation concerns is to identify users and other major interest groups. For the purposes of this plan, these include:

• Pedestrians

• Bicyclists—recreational, commuter, and through users

• Through travelers—travelers who are not from Ellsworth and are primarily passing through on their way to somewhere else (e.g., out-of-state visitors to Acadia National Park)

• Regional travelers—those traveling to or through Ellsworth because of its status as a regional hub or a junction point on the way to nearby areas (e.g., those shopping in

Ellsworth from other Hancock County locations, those traveling through Ellsworth to get to health care centers in Bangor and Brewer)

• Major employers (e.g., Jackson Laboratory)—individuals working in and around Ellsworth, and employers who need ready access to transportation (e.g., for deliveries, employee access and egress)

• Local travelers—those who have an origin or a destination in Ellsworth or very close by for work, shopping, or simply running errands

• The transportation-disadvantaged—those who do not have ready access to cars or any formal transportation provider (e.g., public transit) and therefore cannot connect with needed services (e.g., cannot get a ride to go shopping or to a medical facility)

• Local commercial and other institutional developments—these range from shops and restaurants on Main Street to the larger-scale development on High and Myrick Streets and local hospital and health-care providers

These categories of users and other major interest groups are not necessarily mutually exclusive. For example, through travelers often desire access to local commercial development.

Another important point is the difference in the level of control that the city has over the generation of trips in the different categories of users. For example, what is done in Ellsworth doesn't have a significant impact on the number of through travelers—those trips are produced by major non-Ellsworth generators such as Acadia National Park. However, regional travelers and trips associated with major employers can be affected by encouraging or discouraging new development.

The transportation system can also be considered from the perspective of which modes of transportation are included:

• Basic traffic—passenger and commercial (e.g., delivery truck) vehicles

• Public transportation—including scheduled and unscheduled bus service, ride-sharing and taxi services, and rides provided by social service agencies

• Pedestrians

• Bicyclists

From the outset, it needs to be clear that transportation issues should be discussed from a system perspective and not degenerate into an overly simplistic "pedestrians versus cars"

argument. While it is important to recognize that some problems are more or less serious from a given user perspective, the impacts of solutions may be broader than one perspective. For example, we need to recognize that providing significantly more pedestrian crossing time at a traffic signal will negatively affect traffic flow (and increase congestion); conversely, providing significantly more green time for vehicle users will adversely affect pedestrian flow. The key is to recognize that transportation problems need to be considered as part of an interlocking system and that solutions must be framed—and balanced—in that context.

Another complicating factor is that there are often conflicts between one set of goals (e.g., increased development) and another (e.g., reducing congestion). A good example of this is that the encouragement of new development (or redevelopment) in the downtown area will result in more users wanting to access the transportation system. Whether that means more pedestrians, more work trips, more shopping trips, or more residential trips, the system has to be able to accommodate them all.

b. Transportation Corridors

Several key street segments make up Ellsworth's major identifiable corridors and, in turn, form the core of the primary circulation system (this is not to say these are the only important streets in the city, however):

• Oak Street, State Street, and Bangor Road (US-1A), which extends to Bangor but ends at the intersection of Main (US-1) and High Streets. The terminus of this corridor could be considered to be the town line or the intersection with ME-179 or ME-180.

• Bucksport Road and West Main Street (US-1, ME-3). This corridor reaches from beyond the top of Bridge Hill to the Main/High Streets intersection and includes the intersection of West Main Street/Surry Road (ME-172).

• High Street (US-1 and ME-3). This corridor extends from the Main/High Streets intersection to the divergence of US-1 and ME-3.

• Downeast Highway (US-1), from the divergence of US-1 and ME-3 to (and somewhat beyond) Myrick Street.

• Bar Harbor Road (ME-3), from the divergence of US-1 and ME-3 to at least the intersection with ME-204 (the "cheese-house light").

• Water Street (ME-230) from Main Street to Beechland Road and extending up Beechland Road to Bar Harbor Road (ME-3). This corridor essentially functions as a Main and High Street bypass at various times of the day.
• Christian Ridge Road from Bangor Road (US-1A) to Bucksport Road (US-1). This might not be considered a key corridor in the city, but it does serve a bypass function for travelers who, for example, would normally travel into town on Bangor Road from Bangor and turn right onto Main Street and onto Bucksport Road toward Bucksport.

C. What Is Working?

At the most basic level, the transportation system is "working," although not as well as anyone would desire. The component parts of any successful transportation system are all present. For example, major traffic generators are reasonably well connected, a rudimentary transit system exists, and most streets that need pedestrian accommodation have at least some sidewalks. The questions that arise are really about the quality of the system and the service being provided. There is also the issue of whether the system in its current configuration is sustainable and supportive of a greener Ellsworth going forward.

D. What Is Not Working?

Several issues, ranging from day-to-day congestion to improving different aspects of the system, have been identified as needing attention. The recommendations in this section range from large multiyear projects to small-scale immediate actions.

a. Overarching Considerations: The Need for a Corridor Study

One of the most significant transportation-related actions that should occur in Ellsworth is to undertake a comprehensive transportation corridor study: a detailed analysis of the streets composing the core of the primary circulation system. This study should be done as soon as possible, in order to provide a blueprint for other projects going forward. While there have been various studies in the past, many have had a special purpose in mind (e.g., College of the Atlantic's 2016 bicycle study). A comprehensive corridor study will provide the context for making investments in our transportation infrastructure and for prioritizing other investments. Two overarching principles should guide the corridor study and any recommendations that come from it:

1. The study and recommendations should be consistent with the U.S. Department of Transportation's (USDOT's) "Complete Streets" concept, which has been endorsed by the Maine DOT:

Complete Streets are streets designed and operated to enable safe use and support mobility for all users. Those include people of all ages and abilities, regardless of whether they are travelling as drivers, pedestrians, bicyclists, or public transportation riders. The concept of Complete Streets encompasses many approaches to planning, designing, and operating roadways and rights of way with all users in mind to make the transportation network safer and more efficient. Complete Street policies are set at the state, regional, and local levels and are frequently supported by roadway design guidelines.

Complete Streets approaches vary based on community context. They may address a wide range of elements, such as sidewalks, bicycle lanes, bus lanes, public transportation stops, crossing opportunities, median islands, accessible pedestrian signals, curb extensions, modified vehicle travel lanes, streetscape, and landscape treatments.

Complete Streets reduce motor vehicle-related crashes and pedestrian risk, as well as bicyclist risk when well-designed bicycle-specific infrastructure is included (Reynolds, 2009). They can promote walking and bicycling by providing safer places to achieve physical activity through transportation.[128]

2. The study and recommendations should be consistent with the goals and objectives of "Vision Zero," which is championed by the USDOT and others:

Vision Zero starts with the ethical belief that everyone has the right to move safely in their communities, and that system designers and policy makers share the responsibility to ensure safe systems for travel. Vision Zero is a significant departure from the status quo in two major ways:

1. Vision Zero recognizes that people will sometimes make mistakes, so the road system and related policies should be designed to ensure those inevitable mistakes do not result in severe injuries or fatalities. This means that system designers and policymakers are expected to improve the roadway environment, policies (such as speed management), and other related systems to lessen the severity of crashes.

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128 www.transportation.gov/mission/health/complete-streets.

2. Vision Zero is a multidisciplinary approach, bringing together diverse and necessary stakeholders to address this complex problem. In the past, meaningful, cross-disciplinary collaboration among local traffic planners and engineers, policymakers, and public health professionals has not been the norm. Vision Zero acknowledges that many factors contribute to safe mobility—including roadway design, speeds, behaviors, technology, and policies—and sets clear goals to achieve the shared goal of zero fatalities and severe injuries.[129]

Other key points and questions that the corridor study should address include the following:

• The geometry and rights-of-way for all of the streets composing the core of the primary circulation system need to be reviewed to provide parameters for what can be done to better accommodate all potential users. For example, can the High Street right-of-way accommodate a bicycle lane, wider sidewalks, and possibly a center-left-turn-only lane? Can Water Street be widened to safely accommodate pedestrians and bicyclists?

• To what extent can operations at signalized intersections on the core streets be improved for all users through better signal plans, coordination of signals, improved pedestrian safety, and modified lane configurations?

• Should other intersections on the core streets be signalized (e.g., the intersection of Bangor Road/US-1A with Shore Road/North Street/ME-179) or modified for increased pedestrian activity? An analysis done by the city for the US-1A/ME-179 intersection indicated that some signal warrants are met, although it is not clear what the ultimate recommendation was. In any event, the potential signalization of this intersection should be considered.

• Can general operations on High Street be improved by minimizing left turns through turn restrictions into and out of various developments and, generally, application of more proactive access-management techniques?

• Should the Water Street de facto bypass be more formalized? This could include, for example, signing at the Main/Water Streets intersection informing travelers to Acadia

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129 https://visionzeronetwork.org/about/what-is-vision-zero/.

National Park of an alternative route, using Water Street rather than Main and High Streets (which could be signed as a downtown or commercial access route).

• The specified limits of the corridors should be viewed as flexible. For example, for the Bar Harbor Road (ME-3) segment, the narrowest perspective might have the limit be the signal at Beechland Road or Tractor Supply, while a broader perspective might have the limit be the head of Mount Desert Island. In part, the definition of the corridor might depend on which towns are willing to participate financially in the corridor study.

• The corridor study should identify, and propose solutions for, drainage issues in the corridors and elsewhere (as discussed in Section III.D.e).

A comprehensive corridor study is anticipated to cost $80 to $100,00 and take six months to a year to complete. The study should be coordinated by city staff, and Maine DOT should be approached to provide the majority of funding. In the event that the corridor definitions are expanded (especially toward Mount Desert Island), other jurisdictions may also participate in any required local share.

Until the corridor study is completed, we should limit investment in our transportation infrastructure to projects not expected to be inconsistent with potential study findings. For example, major investment in sidewalks or street trees on High Street should be delayed until it is clear what other aspects of High Street might change (e.g., if the roadway cross section would be changed by the addition of bike lanes). Likewise, if access management is to be pursued, it would be inconsistent to allow multiple curb cuts for new developments.

Recommendation I-1: Ellsworth should undertake a comprehensive transportation corridor study as soon as possible.

The corridor study will provide a guide for transportation in Ellsworth that supports green development. It will also provide valuable input to our comprehensive planning process, contributing to the development of more consistency among land-use controls, desired development patterns, and the transportation system. To that end, the city's zoning ordinances and other related codes and ordinances should be reviewed and evaluated—and in all likelihood modified—so that access to new developments and redevelopments is better controlled (access management). For example, sidewalks might be required

wherever appropriate, and certainly on the core circulation system, and access to major streets be provided for all development.

Recommendation I-2: The city's zoning ordinances and other related codes and ordinances should be reviewed and evaluated with an eye to ensuring that they support efforts to improve our transportation system.

b. Basic Traffic Management Issues

All of the signalized intersections on the corridors appear to routinely operate with excessive delay on at least one approach at some time of the day. As a rule of thumb, requiring motorists to wait for more than a complete signal cycle (an average delay of about 80 seconds) is considered by traffic engineers as level of service (LOS) F, which is unacceptable. Conditions are significantly worse during the summer tourist season when delays are probably at LOS F periodically at some signals throughout the day. However, during a considerable part of the day, and especially in the off-season, operations are more reasonable. There is currently little or no apparent coordination among the traffic signals.

On a more micro level, the lane groupings for traffic negotiating the Water/Main Streets intersection appear to be counterintuitive. For example, the Main Street toward High Street movement at Water Street has the straight and left-turn movements grouped together rather than having a left-turn-only lane and one lane for straight and right; a lane sharing through and left movements will typically result in more delay (the left turns will block the through) than a lane sharing through and right movements.

There is anecdotal evidence that some minor residential streets are being used as alternative routes through town (most likely by local users). An example is some (inbound) Water Street traffic diverting onto Franklin Street during congested periods. As the sustainable development potential of downtown is realized (e.g., increased housing densities, second-story development on Main Street, infill development or redevelopment), traffic will increase and operations will further degrade. While factors such as increased residential density and infill development are positive steps from an overall sustainability perspective, they may have negative impacts on the transportation system, including increased congestion and more trips in all modes.

Problems other than congestion-based delays at signals include midblock left turns on High Street (toward Main Street) into various developments (e.g., banks, restaurants) and onto side streets such as Washington, Deane, and Pine Streets. These turns both present a safety problem and serve to break up the traffic flow on High Street, which is especially problematic during the summer tourist season.

From a geometric design perspective, Water Street, which serves as a de facto downtown bypass for some travelers (e.g., those entering the city on Bucksport Road and destined for Mount Desert Island) is narrow, hilly, and windy. Myrick Street also presents geometric-based traffic flow issues, especially to unfamiliar drivers (e.g., in the summer) although many, if not most, travelers violate lane markings regardless of season, leading to unsafe conditions.

Recommendation I-3: In the context of the proposed corridor study, present coordinated and systematized solutions to improve the efficient management of basic traffic flow, with attention to such issues as the timing of signals, designation of lanes, and limitation of midblock left turns.

Potential Ellsworth Bypass

The idea of a bypass around Ellsworth has been repeatedly mentioned in public meetings and elsewhere. When the public or other interest groups mention a bypass, however, it is not clear if they are referring to: (1) a US-1 route that would connect Bucksport Road (US-1) to the Downeast Highway (US-1 beyond Myrick Street), or to Bar Harbor Road (ME-3) toward Trenton, or both; (2) a connection from Bangor Road (US-1A) to the Downeast Highway (US-1 beyond Myrick Street), Bar Harbor Road (ME-3) toward Trenton, or both; or (3) both overall routes, generally allowing through traffic on US-1A, US-1, and ME-3 to skirt the city. Regardless of which route is being envisioned, there are serious problems with the bypass concept:

• The environmental footprint associated with constructing major roads and a potential bridge across the Union River would be enormous, and it is not clear that any environmental savings from (potentially) reduced congestion would ever be offset.

• The response from landowners whose properties would be taken or affected (i.e., properties not taken but within a few hundred yards of a new road) would be highly negative.

• There would be negative impacts on currently undeveloped areas, including loss of habitat and other green space.
• Commercial interests in the downtown area (Main and High Streets and extending to the major developments on Myrick Street) would be negatively affected (loss of business through decreased exposure to passing traffic).
• The cost of any or all segments of a potential bypass route would be exorbitant. While most of the financial costs would likely be borne by federal and state agencies, there would still be significant local costs, in terms of both human and monetary resources.
• The time line for a preliminary design, environmental impact review, final design, and construction could easily be 20 years or more.
• Given the long time line for study and preliminary design (before the project would even be green-lighted), it is likely that developers would be reticent to invest in the Ellsworth area if a proposed development depends at all on regional and through travelers having easy access to new or redeveloped parcels.
• The Ellsworth-specific costs and resources devoted to consideration (and construction) of any bypass configuration would preclude those resources from being spent on other sustainability-related activities in the city.
• Finally, the city and the Maine DOT do not appear to currently have much (if any) interest in the bypass concept.

Overall, the bypass concept seems to be diametrically opposed to basic principles of sustainability, responsible land stewardship, achievement of social justice, and developing an overarching green plan for the Ellsworth area.

Recommendation I-4: At least for the ten-year duration of this plan, set aside any pursuit of an Ellsworth bypass in favor of other approaches to controlling and reducing traffic congestion in the city.

Impacts of Truck Traffic

Concerns have been expressed in various quarters about truck traffic through Ellsworth. Issues range from having too many trucks in the traffic stream to the noise, pollution, and general safety problems (perceived and real) associated with large trucks. As with passenger vehicles, trucks on city streets have several origins and destinations: trucks that originate in the city (e.g., from land uses along Water Street), are destined for locations in

the city (e.g., for deliveries of various goods), or both (e.g., fuel-delivery vehicles); and trucks that use major streets such as High and Main Streets to simply get through the city (e.g., logging trucks, through trucks headed downeast). There is also anecdotal evidence of through trucks using some streets (e.g., State Street, Christian Ridge Road) as shortcuts to bypass the downtown area.

It should be noted that there are some trade-offs between truck operations, environmental concerns, and pedestrian and bicycle usage. For example, the crosswalks on Main Street, while important for pedestrian safety, can lead to trucks being forced to start and stop, which has adverse energy, noise, and pollution impacts. Furthermore, prohibiting trucks on State Street and Christian Ridge Road puts higher numbers of trucks on Main Street. Given the limitations of alternate routes for trucks through the city, there are not many options for dealing with them. The overarching strategy should be to control, to the extent possible, truck usage of more local streets. This is an issue that the proposed corridor study should consider in some detail, but more immediately we recommend that the city take the following actions.

Recommendation I-5: Restrict truck traffic to those roads that have been designed to accommodate them. These include US-1 (Main and High Streets), US-1A (Bangor Road), and ME-3 (Bar Harbor Road). At this time, truck traffic should not be encouraged to use Water Street as a bypass for the Main and High Streets corridor because of its overly restrictive geometry. In the event that Water Street is redesigned, then that route could become more viable for trucks.

Recommendation I-6: Prohibit through truck traffic from any streets outside the primary corridors described in Section III.B.b. This can be done primarily through signage (e.g., “No trucks” [Manual on Uniform Traffic Control Devices sign R5-2], “Commercial vehicles excluded” [sign R5-4], and “Truck route” [sign R14-1]).

Recommendation I-7: Prohibit “engine braking” on major corridors in order to reduce the adverse impacts of truck operation within the city.

c. Public Transportation Issues

There is very little public transportation in the Ellsworth area. There is limited service to Mount Desert Island, some of the surrounding communities, and Bangor. Some of these services are limited to Jackson Laboratory in Bar Harbor and, to an increasing extent, its

new and expanding Hewett Center in Ellsworth. There is also limited public transportation service “around town,” whereby residents can travel, for example, from some of the senior housing developments to shop for groceries. The around-town service is not well used, but this may be due in part to potential users not knowing about it. Modest efforts have led to the recent sign designation of previously unmarked bus stops, and a new “around-town” service has been added.

The largest formal providers are Downeast Transportation, which runs the Island Explorer serving Acadia National Park (temporarily suspended during the COVID-19 pandemic); the nonprofit Downeast Community Partners (DCP), providing transportation assistance for those in need; and West’s Transportation, which provides daily bus service between Bangor and Calais as well as shuttle service for Medicaid, schools, and businesses.

Other transportation services, including ride sharing, are available from social service groups such as Friends in Action (FIA), which provides free (or inexpensive) trips for almost any purpose on a case-by-case basis. FIA is a volunteer transportation provider, technically an informal provider. The organization sets its own rules for providing rides, which include, for example, adequate notice, age, location, and ability to transfer. If FIA cannot get a volunteer driver, it will to try to find another provider. For example, if the rider fits with a program funded by DCP, then that service can be used. Informal providers with which FIA collaborates include Island Connections on MDI (for riders over age 70) and the Surry community group (for medical trips for Surry residents). The Beth Wright Cancer Resource Center in Ellsworth has some funding to provide taxi rides as a last resort for cancer patients. To receive a MaineCare-supported ride, the ride must meet MaineCare requirements in advance.

There are minimal taxi and ride-share services in the Ellsworth area, but these may increase in the future.

In sum, while there are several transportation providers in the area, there is no coordination of shared goals, and information about services is hard to find (especially for hard-to-service populations). Many of the services are not well known; there are probably many residents who would use some form of public transportation but do not because of lack of knowledge about the services.

There is an urgent need to compile and distribute information on transportation providers, preferably on a citywide website. Materials from the website could be organized into a pamphlet to be distributed and made available at various venues (e.g., the annual "Welcome to Ellsworth" event held at the library). Once the material is assembled and available, it can be updated as new services are provided or existing services are modified. Available materials also need to be kept current.

Recommendation I-8: Catalog and describe the Ellsworth area's available transportation services and create a centralized repository for this information on a city-based website.

Another important step in improving transportation services would be to convene a series of meetings of all the providers in the area, with an eye toward coordinating their services and developing a unified publicity effort. These meetings could initially be informational (what services each provider offers) and then be directed to expanding and improving services in the area. After the first year or so, this could be an annual meeting. For-profit providers such as taxi services and ride-share companies should be included in at least the initial meetings.

Recommendation I-9: Ask the city to convene a series of meetings for all transportation providers in the area, with an eye toward coordinating and improving services as well as publicity.

A new, experimental test route for a more comprehensive "around town" service should be pursued. This could be viewed as an expansion of the existing Downeast Transportation service but would include various housing developments (with an emphasis on senior and public housing), everyday destinations (e.g., grocery shopping, medical services), and various activity centers (e.g., the Moore Center, YMCA, Northern Light Maine Coast Hospital). This effort, which is essentially a more formalized pursuit of an idea advanced by FIA in the last year or so, would involve assessing the demand for the service, defining the route(s), and determining appropriate fares. Work leading up to implementing this test route should take no more than six months; actual provision of the service would depend on fiscal year budgeting for involved agencies.

Recommendation I-10: Explore the possibility of creating a new, experimental test route that would provide more comprehensive "around town" transportation.

The need for more extensive intercity service—for example, between MDI, Ellsworth, and Bangor–Brewer, as well as other destinations such as Bucksport and Franklin—should also be explored.

Recommendation I-11: Examine the need for more extensive intercity service between Ellsworth and other regional destinations.

Work on developing better public transportation services for the Ellsworth area should commence as soon as possible. Execution of the tasks above should not require significant expenditure of funds. Most of the work involved can be done by the various agencies and providers involved, assuming they are willing to be engaged in the effort. There should be city participation in the projects, to lend substantive support to them and enhance the chances of them being realized. If something like a survey of potential users to assess demand is deemed to be appropriate, it seems reasonable that it could be accomplished by a volunteer group such as a College of the Atlantic class.

d. Pedestrian and Bicyclist Issues

Facilities for pedestrians in Ellsworth vary from adequate to virtually nonexistent, while formal bicycle-oriented facilities are nonexistent. An inventory of sidewalks was undertaken under the auspices of the Green Plan initiative and presented to the Ellsworth City Council in 2018. A bicycle study was undertaken by College of the Atlantic (COA) students in 2016, which resulted in proposed bicycle routes through Ellsworth and the identification of several specific problem areas. While several smaller projects have been accomplished, specific pedestrian and bicyclist problems that have been identified include the following:

• There are no designated, signed bike routes or an otherwise comprehensive bicycle circulation system through the city, notwithstanding the legal access of bicyclists on all streets and roads.

• Some significant street segments on the corridors that make up the core of the primary circulation system do not have any sidewalks (e.g., parts of Oak Street, US-1; Bar Harbor Road beyond US-1 and ME-3 divergence).

• There are numerous locations where sidewalks are in disrepair or crosswalks are missing. (A map showing a sidewalk inventory is in the Online Support Materials.[130])
• While pedestrian crosswalks on Main Street are relatively good, with bump-outs (curb extensions) and being well marked and accessible, crosswalk markings are often nonexistent in the winter and into early spring due to traffic and snowplowing. Other crosswalks are not well marked.
• Pedestrian signals are limited to a few signalized intersections.

In addressing these problems, some guiding design principles should be considered:

• For the purposes of this plan, a bike route is a public way (street) that bicyclists are encouraged to use, with signage that indicates (to auto traffic) the presence of bikes.
• Sidewalks should be separated from the street with, when possible, a strip of green space (e.g., grass, trees, rain garden, or other green infrastructure). The idea is to provide a space for the bulk of the snow from the street to go, to make pedestrians feel safer by being farther away from cars, and to be aesthetically pleasing.
• There should be tactile plates for the visually impaired at all crosswalks.
• Sidewalks and other paths should, whenever possible, comply with Americans with Disabilities (ADA) guidelines.
• Consistent way-finding signage should be developed and used throughout the city (and can be added incrementally as projects are developed).

Although the potential for enhanced pedestrian and bicyclist facilities will be largely defined by the comprehensive corridor study (see Recommendation I-1), we discuss several potential projects here.

A comprehensive system of proposed bicycle paths can be found in the Online Support Materials and is based on an earlier study by COA. The geometry of Ellsworth's various streets and roads does not always allow for separate bicycle lanes (or even sidewalks). However, bicycle routes can still be articulated. A good example of one such route would be Shore Road from the US-1A/ME-179 intersection (and a connection to the Ellsworth Trail) along the Union River and Leonard Lake to State Street near Knowlton Park. While the Shore Road geometry probably cannot be changed, signage could be installed

[130] All Online Support Materials referenced in this plan can be found under the Green Plan and relevant action team or focus area pages at www.greenellsworth.org.

to caution motorists that this is a designated bicycle (and runner/pedestrian) route, even though there are no bike lanes and sidewalks per se.

Recommendation I-12: Designate more bicycle corridors in and around the city.

Several projects dealing with pedestrians have been undertaken by COA students, by the city, and by the Green Ellsworth Walkability and Bikeability Committee. The complete list (available in the Online Support Materials) includes projects such as new sidewalks, new crosswalks, intersection pedestrian controls, and new or improved connector paths. The expectation is not that all of these projects will be completed in the near future. Rather, the list serves as a "wish list" from which an annual set of projects can be chosen, depending on available funds in any given year. Two recommendations emerged from this list.

Recommendation I-13: Develop a priority plan for renovating sidewalks.

Recommendation I-14: Establish an annual budget for sidewalk improvements as part of the city's ongoing capital improvement program. Some sidewalk improvements can thus be made every year going forward.

A noteworthy, and potentially near-term, project is the High Street pedestrian demonstration project, proposed for Bar Harbor Road from roughly the US-1/ME-3 divergence to the Myrick Street area. This project would include new and improved sidewalks (none currently exist in some areas) and would provide pedestrians with safe passage from the existing High Street commercial area and side-street residential areas to the extensive and growing development along Bar Harbor Road (and Myrick and other nearby streets). It would also support pedestrian access to Jackson Laboratory's expanding Hewett Center. The route would comprise three sections (see the map in the Online Support Materials): an area where existing sidewalk would be improved, a new path possibly running over private property near Birdsacre, and new facilities that would connect to existing or developing streets in the Myrick Street area.

The High Street pedestrian demonstration project would also provide a good model for dealing with related problems such as potential expansion of the usable public right-of-way along the street. For instance, here as well as elsewhere in the city, securing or expanding a public right-of-way for the improvement or introduction of sidewalks could

also create an opportunity or model for the addition of more street trees or public landscaping.

Recommendation I-15: Plan and execute the High Street pedestrian demonstration project.

e. Drainage Issues

Problems with drainage and accumulation of water on streets occur at various points throughout the city. A well-known example is Water Street (especially the inbound lane toward Main Street), where there are relatively serious surface drainage problems. These problems are caused by a variety of factors, including inadequate system size and maintenance issues with catch basins. In addition to localized flooding (and potential icing in the winter), there are environmental impacts from stormwater flowing over adjacent properties and into existing water courses. While some trouble spots are well known, there does not appear to be a systematic effort to identify, prioritize, and address drainage issues throughout the city.

The comprehensive corridor study (see Recommendation I-1) should identify and propose solutions for drainage issues in the transportation corridors and related areas that may not be in the street right-of-way (e.g., stormwater flowing over and underneath State Street and Central Street needs to drain more efficiently into the culverts on riverfront property that were intended to carry the water to the river). There is some discussion of drainage issues in other chapters (especially Chapter 1). Here we define two specific tasks to address recurring drainage problems throughout the city. Once a reasonably comprehensive catalog of problem spots is developed, priorities should be established and a program developed to address such problems on an annual basis (e.g., as part of the capital improvements program)—similar to what is proposed for sidewalk development and maintenance (see Recommendations I-13 and I-14).

Recommendation I-16: Develop a priority plan for making drainage improvements in the public right-of-way and other areas necessary for effective drainage of the road system.

Recommendation I-17: Establish an annual budget for drainage improvements as part of the city's ongoing capital improvement program.

IV. Energy Production, Use, and Conservation

Clean, renewable energy production and energy conservation are essential to the creation of sustainable green communities. Opinion surveys, such as those done by the Pew Research Center,[131] consistently show that a sizable majority of Americans say that climate issues are very important to them. Here in Downeast Maine, there are several indicators that our climate is becoming stressed: warmer ocean water (the Gulf of Maine is warming at a faster rate than other oceans), hotter summers, changes in storm patterns and intensities, shifts in migratory species, and an increase in tick- and mosquito-borne diseases.

Whether we are city officials, business owners, or residents, we all need to do our part to reduce greenhouse gas emissions by reducing the use of fossil fuels in our homes, businesses, and vehicles. This Green Plan encourages efforts to assess and implement cost-effective reductions in energy use and to increase local production of renewable energy.

Our vision is for Ellsworth to become an environmental leader in the Downeast region by prioritizing citywide energy efficiency and total independence from fossil fuels within the next decade. Doing so will require constant attention to the latest information from both the energy industry and science experts, and the application of that information to the Ellsworth community. The Maine Climate Council recommendations submitted to Governor Janet Mills in December 2020[132] will also provide a useful map for Ellsworth to follow.

It will take the active participation of City Council, city staff, and engaged citizens of all ages to do this well. Green Ellsworth is ready to guide and assist in this endeavor.

A. Guiding Principles and Objectives

In order to achieve our vision for energy production, use, and conservation in Ellsworth, we first established some guiding principles and objectives to inform our analysis of current conditions and to frame our recommendations.

a. Guiding Principles

Our three overarching guiding principles are:

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[131] www.pewresearch.org/science/2020/06/23/two-thirds-of-americans-think-government-should-do-more-on-climate/.

[132] www.maine.gov/governor/mills/news/governor-mills-welcomes-plan-combat-climate-change-announces-actions-protect-maine-people-2020.

1. The burning of fossil fuels is harmful to the global climate and to the general quality of life in Ellsworth and elsewhere.
2. Strategic long-term investments in energy efficiency and conservation can save taxpayer dollars and result in cleaner air and water.
3. It is every citizen's responsibility to become educated about energy conservation, for the benefit of themselves and for future generations.

b. Objectives

• To replace the burning of fossil fuels with renewable energy and to increase energy efficiency.
• To encourage energy policies promoting the use of renewable energy in municipal, business, and private sectors.
• To ensure that Ellsworth's municipal electricity use comes from 100% renewable sources by 2030.
• To promote large- and small-scale solutions that help businesses and residents conserve energy and save money without compromising comfort.

B. Overview of Energy Production, Use, and Conservation in Ellsworth

Versant Power (formerly Emera Maine, formerly Bangor Hydro) supplies electrical power to Ellsworth and the surrounding area. On its website, Versant claims "All competitive electricity providers, including Standard Offer providers, must provide no less than 30% of their total kilowatt-hour sales to customers in Maine with electricity generated from eligible renewable resources."[133] Green Ellsworth believes that this is not good enough and advocates that electricity supplied to Ellsworth come from renewables at a rate that is closer to the goals set by the State of Maine for its own energy portfolio. During its 2019 session, the Maine Legislature passed LD 1494, which increases Maine's Renewable Portfolio Standard (the amount of retail electricity sales that must come from renewable resources) to 80% by 2030 and to 100% by 2050. This law updates the eligible

133 https://versantpower.com/residential/my-service/electric-choice/. This statement is derived from the Maine Public Utilities Commission, Electric Restructuring Rules, Chapter 311, Sec 3A (04/03/03): www.maine.gov/mpuc/legislative/rules/archive/part_3/ch-311.pdf.

types of electricity production to focus on those with the highest value and lowest environmental impact, and also promotes renewable heat generation.

The kinds of renewable energy sources most feasible to Maine energy suppliers include solar, wind, and hydro-generated power. Individuals may also find geothermal energy a viable alternative.

During our green planning process, the committee focused on energy, known as the Ellsworth Green Action Team (EGAT), has been pushing the City of Ellsworth to invest in solar energy to power its municipal electricity needs. Green Ellsworth suggests that the city set the goal of attaining 100% renewable energy by 2030. Fulfilling this goal will not only lessen the negative effects of our changing climate but should also save city taxpayers money in the long run.

C. What Is Working?

Energy efficiency and conservation is a fast-evolving field, with the city, state, and others moving forward on a variety of fronts. Here we highlight some of the positive accomplishments of the past decade in Ellsworth.

In the spring of 2020 the City Council adopted a solar ordinance governing solar power projects over 1,750 square feet in size.

In 2018, city officials invited Revision Energy and Sundog Solar (two of Maine's best-known solar energy companies) to tour sites in Ellsworth where a municipal solar farm could be placed. The companies were also given data on the city's electricity usage. A City Council–level Solar Project Committee was formed in spring of 2019 to investigate solar energy options for the city. In late 2019 a Request for Proposals was posted for a municipal solar installation that would supply most of the city's electricity needs, including in the public schools. After reviewing several proposals, the Solar Project Committee recommended a "Billing Credit Agreement" with a New Hampshire investor. Under the agreement the city will not own a solar facility, nor will the city be using direct solar power that is generated locally. Instead, the city will purchase "credits." The committee recommended that the city commit to 90% of the 5.4 million kilowatt hours used annually and reserve the remainder for other efficiency projects. A contract with a developer was approved by the City Council in October 2020. The agreement is expected to produce significant savings for Ellsworth taxpayers.

In 2018 the City of Ellsworth and EGAT partnered with the Natural Resources Council of Maine to offer a "Weatherize Ellsworth" fair on energy efficiency. Participants were offered a free energy audit and discounts on materials and work done by an approved contractor through Efficiency Maine. Representatives from WindowDressers were on hand to help homeowners make customized window inserts that improve energy efficiency in their homes. All of the weatherization programs aimed to lower energy costs for homeowners mainly through improved insulation and by promoting heat pump installation. Ninety people signed up, 51 homes were audited, and 20 projects were completed. Opportunities of this type should be offered again, building on the experiences and success of original participants.

Electric vehicle (EV) charging stations were also addressed in 2018. A collaboration between the City of Ellsworth and the Mount Desert Island–based nonprofit A Climate to Thrive resulted in two EV charging stations being installed in the Franklin Street parking lot in downtown Ellsworth. Presently these charging stations are free to the public and available 24 hours a day. For now, the City of Ellsworth absorbs the cost of operating the charging stations. The collaboration is part of a larger plan by A Climate to Thrive to ensure the availabilty of EV charging stations along the Downeast coast. A third charging station is located at Tradewinds Variety on Route 1A. Green Ellsworth encourages individuals to purchase EVs, and businesses to install charging stations for use by their customers and the general public

In 2010 the Ellsworth Elementary Middle School renovation incorporated an energy-efficient geothermal system in its energy portfolio. A circulation system using eighty 500-foot-deep wells brings water from deep in the ground into the building to heat and cool the building. A "green" roof was also installed during the renovations. When practical, the city should incorporate renewable energy options into all renovation and construction projects it undertakes, such as a new career and technical education center or public safety building.

D. What Is Not Working?

The question is not so much what is not working, but rather what new initiatives should be considered and how Ellsworth can improve its energy usage going forward. Nearby communities (e.g., Bucksport, Bangor, Tremont, Bar Harbor) have already taken action

to improve their renewable energy portfolios and provide good models for success. Ellsworth should continue to investigate and adopt solutions that best fit the community's character and needs.

The recommendations in this section are relatively short-term in nature, but they can be expected to have long-term ramifications. In advancing these recommendations, we assume that groups such as EGAT will continue to function and take an active role as new initiatives and opportunities arise. Some of these initiatives and opportunities will be spurred on by changes in state and federal funding opportunities, while others will result from the success of current activities.

a. Overarching Considerations: An Energy Advisory Committee

The fast-paced world of renewable energy is both exciting and daunting. Green Ellsworth does not expect city staff to be able to keep abreast of all the changes in this field without outside assistance. There are professionals and retired people in the community who have expertise in the area of energy conservation who can be tapped for help if they were only asked.

Recommendation I-18: Create an Energy Advisory Committee, composed of city residents, business owners, municipal planning and public works staff, and one City Council member.

b. Solar Energy

Green Ellsworth encourages efforts to develop renewable sources of energy and energy storage, especially a robust community solar program available to all socioeconomic groups and a municipal solar installation to power the city's buildings and vehicles. The city took its first step toward developing a municipal solar farm in 2018, when two solar energy companies were invited to tour potential sites in Ellsworth (see Section IV.C). It is now apparent that a citywide solar energy policy would be helpful to address a range of solar-related activities, including solar installations on municipal land for the purpose of providing community solar farms.

Recommendation I-19: Develop and implement a citywide solar policy.

Recommendation I-20: Develop community solar farms whereby Ellsworth residents may buy shares in a solar grid installed on city property (or other leased property) in lieu of installing solar panels on their own roof or property.

Recommendation I-21: With assistance from the Natural Resources Council of Maine, adopt a Solarize Ellsworth program whereby Ellsworth residents can use group-purchasing discounts to install solar panels on their private property.

c. Vehicle Efficiency

Improving the energy efficiency of vehicles is a key step in moving toward energy independence. Driving hybrid or all-electric vehicles rather than gas-powered vehicles helps reduce emissions, as does limiting the amount of time that vehicles spend idling when they are not in active use. Green Ellsworth supports private and public transition to electric vehicles by encouraging local businesses to install EV charging stations, and by promoting the installation of additional stations in conveniently located public places for motorists passing through Ellsworth. Efficiency Maine Trust has provided funding for this in the past and may be a future source of funding for public EV stations in Ellsworth.

Recommendation I-22: Develop and implement a city energy policy for replacing municipal gas-powered vehicles with hybrid or electric vehicles.

Recommendation I-23: Develop and implement a city energy policy to, when it is practical, reduce the idling of city and school vehicles when they are not in active use.

Recommendation I-24: Encourage the development and deployment of EV charging stations throughout the City of Ellsworth.

Ellsworth should also explore plans to promote energy-efficient public transportation and safe, convenient, nonmotorized modes of transportation. Recommendations proposed in Section III.D.d of this chapter to improve pedestrian- and bicycle-friendly infrastructure will complement this goal.

Recommendation I-25: Develop plans that promote energy-efficient public transportation and nonmotorized modes of transportation.

d. Building Efficiency

Constructing energy-efficient buildings is another key step in moving toward energy conservation and independence. Green Ellsworth supports and urges the city to embrace and enforce the Maine Uniform Building and Energy Code (MUBEC), a new addition to the state building code that contains more robust energy conservation and efficiency requirements for new and renovated construction, based on national standards. In addition to measures that reduce fossil fuel consumption, MUBEC includes cost-effective

solutions that will save municipalities and residents significant money over the life span of new or newly renovated installations and building construction.

Recommendation I-26: Bring local codes and ordinances into compliance with the Maine Uniform Building and Energy Code, and ensure compliance in all new construction through Planning Board review and code enforcement.

Green Ellsworth also supports city efforts to improve energy efficiency in municipal buildings by installing heat pumps or by burning biomass sourced from locally harvested wood chips or pellets. Green Ellsworth also encourages the city to implement policies promoting energy-efficient renovations to older nonmunicipal buildings through some form of incentives (e.g., tax abatement or other assistance) and by developing partnerships with other groups (e.g., Natural Resources Council of Maine, WindowDressers) to assist with weatherization projects.

Recommendation I-27: Propose and encourage adoption of a city energy efficiency renovation policy.

Recommendation I-28: Develop weatherization partners to assist with weatherization projects.

e. Community Education and Outreach

Going forward, a major focus of Green Ellsworth will be to help develop educational programs and materials for City Council, city staff, and the general public regarding energy-related topics. Programs will vary depending on the venue, speakers, publicity materials, film rentals, site tours, and so forth. These educational efforts will promote:

• Weatherization programs for homes and businesses

• Installation of energy-efficient lighting and appliances

• Development of local renewable energy sources and energy storage, especially, but not limited to, solar, wind, biomass, and geothermal

• Purchase of fuel-efficient vehicles

• Development of appropriate rebates and tax credits to assist with all of the above

Recommendation I-29: Develop and promote the use of energy-related educational programs and materials.

Recommendation I-30: Educate Ellsworth residents and businesses about available state and federal energy-efficiency incentive programs, such as those promoted through the Efficiency Maine Trust.

V. Solid Waste Management

Management of solid waste is key to Ellsworth's development as a green and sustainable city. Our focus here is on the management and disposal of household trash at the Ellsworth Transfer Station and Recycling Center. Minimal discussion is offered concerning disposal of construction materials, business-generated waste, and compost, although these are also part of solid waste management in Ellsworth.

A. Guiding Principles and Objectives

Regarding solid waste management, the overarching principle for this Green Plan is that wise management of solid waste at all stages of disposal will improve our quality of life and benefit the local economy. The overarching objective is to research and implement smart changes in the way the city, businesses, and citizens dispose of solid waste, in order to reduce the volume of waste and its harmful impacts on our environment.

The solid waste management hierarchy written into the Maine statutes provides a guide for Ellsworth to strengthen its solid waste policies and solid waste handling. That hierarchy prioritizes management in this order:

- Reduce the amount of total waste
- Reuse waste
- Recycle waste
- Compost biodegradable waste
- Incinerate for energy, or reduce by other energy-producing means, the volume of waste that must be landfilled
- Landfill waste

B. Overview of Solid Waste Disposal in Ellsworth

Businesses in Ellsworth mostly contract waste disposal through private contractors such as Casella Waste Systems. Construction material such as construction debris, shingles, appliances, and scrap metal is disposed of for a fee, determined by weight, at the privately run Ellsworth Waste Services located behind the city's transfer station. In 2018 Maine Organics, a subsidiary of DM&J Waste in Winterport, began composting biosolids

in an area behind the city's transfer station. The city's sewage sludge, Jackson Laboratory mouse shavings, and seafood waste from Maine Shellfish are being composted now. Maine Organics does not currently accept household food waste but hopes to do so in the future.

The Ellsworth Transfer and Recycling Station receives all household trash and presorted recyclable material from Ellsworth households. At the transfer station, nonrecyclable household trash is compacted and transported approximately 30 miles to Penobscot Energy Recovery Company (PERC) in Orrington, where it is burned to produce energy. The resulting ash and residue material are placed in a landfill. The contract with PERC was signed in 2017 and runs until 2033. The city pays PERC a disposal fee per ton, which is adjusted annually based on the Consumer Price Index. The fee is currently $75 per ton. In addition to the disposal fee, the city pays for transporting the waste to PERC. In FY 2017 Ellsworth trucked more than 1,400 tons of household solid waste to PERC (900 tons collected at the transfer station and 530 tons collected curbside), costing the city more than $100,000. In 2018 the numbers were similar: the city shipped just over 1,400 tons of waste to PERC. Approximately 545 tons of material were sent elsewhere to be recycled.

In 2019 Ellsworth's recycling program was cut back when the city, along with virtually every community in Maine and beyond, was forced to reassess its recycling program after China stopped taking recyclables from the United States. Current unsettled recycling markets and an ever-growing volume of solid waste have put pressure on all communities to be alert to their solid waste management needs and to look for better solutions. The diminished recyclables market led Ellsworth to modify its recycling program to accept only U.S.-made corrugated cardboard; newspapers, magazines, catalogs, and advertising flyers; limited types of #1 and #2 plastics; and tin and aluminum cans. As a result, more material is being disposed of as trash at the city's transfer station, at a cost to individuals of $3 per bag. To date there are no figures for the increased amount of trash going to PERC instead of into recycling, but they will certainly be significantly higher given the reduction in the types of materials that can be recycled. Finding a way to reduce the amount of trash going from Ellsworth's municipal transfer station to PERC would result

in savings to the city (all taxpayers), as well as to each citizen who pays a disposal rate of $3 per bag.

In makes sense that one remedy is to reduce the amount of trash in the system. Maine is one of ten states with container deposit legislation (i.e., a bottle bill) that applies to certain drink containers. The bottle redemption program reduces the amount of trash going into the solid waste system. The Container Recycling Institute estimates that 60% of bottles and cans are recycled in states having bottle bills (compared with 24% in states having no such regulations) and that roadside litter is reduced by 30% to 60%.[134] Several Ellsworth businesses provide redemption services, and local charities and nonprofits use bottle drives as fundraisers. Unclaimed bottle deposits are credited to the state and are used for environment-related purposes.

Plastic bags and plastic film packaging are also big contributors to solid waste. By law, retailers in Maine that use plastic bags to bag products must provide a place on site where the bags may be recycled.[135] Fortunately other plastic film products such as single-use plastic bags, produce bags, bread bags, zip-lock bags, and other bags composed of polyethylene (PE) film can also be recycled along with the single-use product bags.[136] Hannaford, Shaw's, and Walmart have recycling bins for plastic and for paper located in their stores. Despite this opportunity to recycle plastic bags and other specified thin plastic film, a significant amount still ends up along roadsides and in ponds, streams, and bays, where it degrades into smaller and smaller particles but never disappears completely. Plastic is ubiquitous and is only now being recognized as causing damage at all stages of the food chain. Links to websites about the need to reduce plastic can be found in the Online Support Materials.

C. What Is Working?

In recent years, citizen groups have organized to clean up the roadsides and streams. For example, in 2018 and 2019 individuals and nonprofits associated with Green Ellsworth coordinated with the City of Ellsworth to promote roadside cleanups for a week each spring, and with Frenchman Bay Conservancy to clean up Card Brook on specific days.

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134 See www.container recycling.org/index.php./issues/bottle-bills.

135 For the complete text of this law, see www.maine.gov/dep/waste/recycle/plastic-bag-film.html.

136 For more information, see www.plasticfilmrecycling.org.

These annual cleanup events remove hundreds of pounds of trash from the local environment.

Also in 2018 and 2019, EGAT took aim at reducing solid waste and the negative environmental and health effects of plastics by proposing the elimination of single-use carry-out plastic bags by Ellsworth businesses (i.e., a bag ban). There was considerable support for such activity:

• An informal poll taken on Election Day 2018 at City Hall indicated 235 people in favor of banning single-use plastic bags and 15 opposed.

• A survey of many Ellsworth businesses in 2018 also showed support for a bag ban, as long as it applied to all businesses regardless of their size and did not include a mandatory fee collection on paper bags provided at the point of sale. (See the full report in the Online Support Materials.)

• A statewide survey of its membership in 2018 by the Retail Association of Maine found that about 65% of respondents preferred either a ban or fee on plastic bags, with about 35% opposed. (See the full results of the survey in the Online Support Materials.)

On February 11, 2019, an ordinance proposed by EGAT to eliminate the use of single-use carryout bags was presented to the Ellsworth City Council for consideration. The council voted to accept the ordinance for review by staff and legal counsel, and promised a public workshop on the topic. Because there was a statewide bag ban being considered in the Maine Legislature at the same time, the council deferred further discussion of a local ban until after the legislature had acted.

In 2019 the Maine legislature passed, and Governor Mills signed, LD 1532, a bill to impose a statewide ban on single-use carry-out bags. The bill was scheduled to take effect in April 2020, but implementation was postponed until January 2021 due to the COVID-19 pandemic and resulting economic stress on businesses.

In a related effort, on April 30, 2019, Governor Mills signed LD 289, making Maine the first state to ban the widespread use of polystyrene foam food containers, as of January 1, 2021. Green Ellsworth heartily supported this bill and planned to encourage Ellsworth businesses to voluntarily stop using polystyrene food containers before the end of 2020, but abandoned the effort in light of the COVID-19 pandemic.

In early 2020, EGAT held a well-attended public program on an Extended Producer Responsibility (EPR) initiative whereby the producer of a product is responsible for the eventual disposal of both the packaging and any of the product's disposable parts. EPR shifts the costs of waste disposal from consumers and municipalities onto the producer—thereby encouraging the producer to use less packaging and incorporate more easily recyclable materials in their product design. In February 2020 EGAT presented a resolution in support of EPR legislation under consideration in Augusta. The resolution passed and was sent on to the Maine Legislature. The bill in the 129th Maine Legislature in support of EPR is pending, and will be reintroduced in the 130th Legislature if needed. EGAT and Ellsworth's Public Works director, Lisa Sekulich, consulted with the nonprofit Ecomaine in the spring of 2020 to discuss options for improving Ellsworth's rate of recycling. Ecomaine has operated successfully since 1976 and is an excellent example of a municipal waste management provider. Its location in southern Maine makes it cost-prohibitive for Ellsworth to participate in its management system at this time, but we will keep our eyes on it, and other alternatives, in the future.

In addition to assisting in framing local ordinances aimed at reducing or eliminating certain plastics (e.g. single-use carry-out bags and Styrofoam and polystyrene containers), Green Ellsworth will continue to identify new opportunities to engage Ellsworth citizens in solid waste management, including, but not limited to, increasing opportunities for reducing, reusing, recycling, and composting; promoting biodegradable product packaging; reducing all plastics sold or used in Ellsworth; and promoting upcycling (defined as the reuse of discarded objects or materials in such a way as to create a product of higher quality or value than the original).

D. What Is Not Working?

The need to reduce and recycle more of the solid waste in Ellsworth and elsewhere is indisputable. Locally, the financial cost of household solid waste disposal has resulted in some people illegally dumping their trash in privately contracted dumpsters—or on rural forested land, leading to pollution of the land as well as nearby streams and wetlands. In rural parts of the city, household trash is sometimes burned, resulting in toxic emissions being released into the air. If disposal costs continue to rise, these illegal and environmentally detrimental behaviors may increase. There are several initiatives that the

city can undertake to reduce and manage solid waste. Green Ellsworth hopes to work with the city to find the solutions that best fit our community.

Recommendation I-31: Explore additional restrictions on plastic packaging and products and follow through to implementation.

Recommendation I-32: Expand Ellsworth's recycling program to accept more types of materials.

Expansion of the current composting capability by Maine Organics to include easy access for businesses as well as private citizens should be investigated and implemented in 2021. If that fails, then a second composting program should be explored, either by the city or in partnership with a local business or nonprofit.

Recommendation I-33: Explore ways to expand the current composting program so that businesses and private citizens can and will participate.

In order to improve public understanding and implemention of the solid waste hierarchy, the city's existing Solid Waste Committee should be reorganized to include city residents, city business owners, the city's planning and public works staff, and a designated liaison to City Council. The purpose of the committee would be to research, evaluate, and support the implementation of citywide solid waste strategies. A letter requesting this change was sent to the city manager in 2019 and the change was rejected. Nonetheless, Green Ellsworth should increase its advocacy for more citizen participation in solid waste study and policy making.

Recommendation I-34: The city's Solid Waste Committee should be reconstituted to include residents, businesses, and appropriate city staff in addition to City Council members. The committee should be charged with proactively investigating and recommending solid waste management strategies for Ellsworth.

Successful awareness programs such as roadside cleanups and the Card Brook cleanup should continue and be expanded. The city should also consider an adopt-a-road-segment program for individuals, businesses, and civic groups, to periodically remove debris from our most trafficked routes in Ellsworth. Cleaner roads will add to our community pride, instill resident and tourist appreciation in the city, and enhance environmental health. Such cleanup programs are illustrative of how citizens can become engaged in grass-roots efforts to help control solid waste in Ellsworth.

Recommendation I-35: The City of Ellsworth and Green Ellsworth should continue and also expand successful cleanup initiatives throughout Ellsworth.

Equally important are ongoing public education efforts that include lectures, movies, forums, debates, school programs, and facility tours to inform citizens about the importance of following the solid waste hierarchy and thus contribute to reducing the waste in our environment.

Recommendation I-36: Develop and implement a joint city–Green Ellsworth public education program to familiarize the public with solid waste management issues and with actions individuals can take to reduce solid waste.

CHAPTER 5
INTEGRATING ACTIONS

I. Introduction

The preceding chapters evolved out of targeted consultations and analysis of current conditions relating to aspects of Ellsworth's natural and human systems that were distilled down into four main topic areas. Each of those areas generated between 35 and 50-plus recommended actions, for which time lines, necessary resources, funding sources, and responsible parties have been designated (see the appendices). The four Green Ellsworth action teams, each one focused on one of our four major topic areas, will coordinate with partner organizations and others to see that these actions are addressed in as timely a manner as possible.

However, many of the issues and recommendations addressed across the previous chapters are closely interrelated and overlapping. What happens on land has a significant impact on our water resources, and together those ecosystems provide essential services that affect our local food systems and are equally affected by our transportation, energy, and waste management systems. Additionally, action on several specific recommendations is directly dependent on broader, facilitating actions that need to happen first.

Because human society and its systems exist within and depend on complex, integrated ecosystems, our sustainability as a community and as a society depends on a fundamental shift in perception and approach. Our human systems too often clash with the realities of our natural systems. We often see our water and land, and the resources related to them, primarily as raw materials for human consumption whose value is measured by what we can do with them or how we benefit from them. We need to transition to making the first consideration—at all levels of decision making—the relative environmental profit or expense of our actions. We need to systematically consider what actions are the best choice for the environment and how we can make our human systems more effective and less costly through greater integration with natural systems. Without this approach, we will continue to incur an increasing deferred and unsustainable debt within both our natural ecosystems and our human systems.

II. Overarching Recommendations

This Green Plan itself applies an integrated systems approach at several levels. On one level, we recognize that we need to coordinate our recommended actions with broader actions by key players such as city government. On another level, we take our cue from the complexity and interrelated nature of ecosystems and the players within them by identifying the ways in which multiple recommendations derived from each chapter may be best addressed by drawing together parallel initiatives into overarching strategies. We see this integration as contributing to a more efficient and ultimately more effective way of achieving our overriding goal of making Ellsworth a greener community.

For instance, Chapters 1 through 4 specifically identify ways in which city government can bring its current practices, procedures, regulations, and structures more in line with the desires of its citizens for an increasingly sustainable community. This plan lays out the principles and objectives that green planning participants want the city to embrace. By integrating the recommendations from across this plan that specifically require major action by city government, Green Ellsworth can help the city develop a road map for how it can begin to move toward greater sustainability. The city should also designate a sustainability coordinator to work with its departments and elected officials to ensure that the principles and objectives for a greener city are integrated across every level of government.

Recommendation IA-1: With the assistance of Green Ellsworth, adopt and operationalize a City of Ellsworth Sustainability Framework drawing on the principles and recommendations laid out in the Green Plan.

Recommendation IA-2: Designate a sustainability coordinator to assist in implementing the city's Sustainability Framework and integrating its principles and objectives across all levels of government.

From the earliest involvement of the city's Planning Department in the development of this Green Plan, it was anticipated that the Sustainability Framework created as a result of the green planning process would provide the context and a mandate out of which a revised comprehensive plan would emerge. Given that the city's current comprehensive plan is now 16 years old, renewing that plan is imperative for the city to be able to follow

through on many Green Plan recommendations. A revised comprehensive plan needs to lay the groundwork for ordinance changes and many other critical initiatives. On a fiscal level, access to state-managed funding sources that will be important for implementing our Green Plan recommendations will also be affected if the city is not able to secure "preferred status" by creating an up-to-date plan deemed "consistent" with the goals of the state's Growth Management Act.[137] In the past decade, the act's specific requirements for comprehensive plans and their consistency with state goals and expectations underwent significant changes. Consequently, Ellsworth's 2004 Comprehensive Plan is out of date at both the local and state levels. The good news is that the state expectations are closely aligned with the vast majority of goals, principles, and recommendations in this plan.

Recommendation IA-3: With assistance from Green Ellsworth, expeditiously update the city's 2004 Comprehensive Plan to be consistent with a Sustainability Framework derived from this Green Plan and the state's Growth Management Act.[138]

Across this plan, examination of key focus areas results in numerous recommendations for changes to the city's zoning and ordinances, particularly the Unified Development Ordinance (UDO). In the process of revising the required Land Use Plan for the comprehensive plan, it will be important to address these recommendations and ultimately implement the necessary changes to zoning, the UDO, and other ordinances.

Recommendation IA-4: In creating the required Land Use Plan component of the revised comprehensive plan, address related Green Plan recommendations from Chapters 1 through 4 and then implement this Land Use Plan by substantially revising city zoning, the UDO, and other ordinances and regulations.

A major concern throughout our planning process has been to look for ways in which our sustainability objectives can in fact reduce costs to the city and enhance its revenue by identifying strategies for securing external funds that will augment tax revenue, provide

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137 See www.maine.gov/dacf/municipalplanning/docs/ch208_annotated_2014.pdf. Competitive grant programs for which "preferred status" applies include Community Development Block Grants, Land for Maine's Future, Municipal Investment Trust Fund, DEP 319(h) Non-Point Source Protection Grants, DEP State Revolving Loan Fund, Land and Water Conservation Fund, and SPO Plan Implementation Grants.

138 See Online Support Materials under the Green Plan and relevant action team or focus area pages at www.greenellsworth.org for examples of such data: the build-out analysis, green spaces inventory and landscape surveys, green spaces and historical sites map, zoning and soils mapping and analysis, pedestrian crossings inventory, tree surveys, etc.

employment for our citizens, and reduce the deferred debt and tax burden for future generations—especially as related to upgrading our aging road, water, and stormwater infrastructure. However, many of the recommendations in this plan will require financial allocations from the city. In most cases this will involve modest sums, to show that the city has sufficient "skin in the game" to leverage grant funding or somewhat larger amounts to make up a required percentage of a project budget in order to qualify for government programs. In other cases, as with road improvements, for instance, funding will need to come exclusively from city revenue over a phased period of time. With all of this in mind, we see fiscal sustainability as being closely linked with our objective of sustainable development. The city needs to critically examine its approach to development, the relative diversification of its revenue streams, and the actual impact of its annual investments in the community compared with the benefits to and priorities of its citizens.

Recommendation IA-5: Commission a fiscal impact analysis that involves community consultation, to facilitate tax–benefit alignment and an understanding of citizen priorities so as to provide a grounding for City Council budget deliberations.

Key to realizing our sustainability goals is recognizing that none of the major systems referenced in this plan respect official borders. The sustainability of our water, land, food, transportation, energy, and waste management systems depends on our capacity to work with other municipalities, agencies, and organizations whose policies also affect those systems. While there may be a need for networks focused on specific systems (as noted in other chapters), their interrelated nature calls for the development of a countywide (or possibly even regional) Sustainable Development Network to manage our shared resources. Although this would most likely be a loose, informal network, it could facilitate the sharing of information, development of joint initiatives, grant funding, and coordination of policies or planning involving adjacent resources. It could result in the kind of "regional coordination program" specifically called for in the state's comprehensive plan guidelines. The recent introduction of electric vehicle charging stations in Ellsworth thanks to an initiative launched by A Climate to Thrive based on Mount Desert Island provides an example of the mutual benefits to be derived from such collaborations. In particular, it makes sense for the three sustainability initiatives

currently underway in Hancock County (in Ellsworth, on MDI, and on the Blue Hill peninsula) to work together for mutual success. Another recent initiative by A Climate to Thrive involving Hancock County commissioners demonstrates a willingness at the county level to participate in sustainability projects, and as the shire town and service center for the county, Ellsworth has an important role to play in facilitating such efforts.

Recommendation IA-6: Bring together a countywide Sustainable Development Network that includes similarly mandated organizations, municipalities, and relevant countywide organizations to share information and foster coordinated sustainability initiatives.

A common concern across all four of the preceding chapters is stormwater management. It is the point at which erosion of the land affects our precious water resources, and where repurposed and failing human systems for drainage above- and belowground can benefit from greater attention to the topography of the land, trees, and other green infrastructure, including historic farmland. Because of rising sea levels and increasingly violent storms, the immediate local impact of stormwater literally brings home the importance of shifting to alternative energy sources and away from fossil fuels. Ongoing denial of this increasing problem and failure to address it from the integrated perspective suggested here constitute an unsustainable deferred debt for future generations that could have catastrophic results for our community. This cannot be the sole responsibility of the city's Public Works Department. The city needs to bring together key parties to this plan (e.g., Downeast Salmon Federation, Frenchman Bay Conservancy, the Ellsworth Garden Club, and lake associations) and others to develop a phased, multidimensional stormwater management plan that shifts the focus to one clear goal: the retention and filtering of as much runoff as possible.

Recommendation IA-7: Develop a phased and integrated stormwater management plan for the city that involves not only upgrading the road and underground infrastructure, but also reducing and limiting impervious surfaces and using conserved and landscaped green infrastructure.

Successful implementation of this plan will require similarly diverse engagement from the community as well as city departments. While Public Works will need to refurbish underground systems and replace undersized culverts through road improvements, the Planning Department will need to make significant changes to the UDO (especially

Chapter 56, Article 10, which relates to parking and impervious surfaces). The Planning Department will also need to work with the city's new parks and recreation specialist and other knowledgeable people from Frenchman Bay Conservancy and the Ellsworth Garden Club to strategically conserve green spaces, augment and redesign more functional landscaping, and maintain it effectively. In addition to the need for the DEP and Code Enforcement Office to enforce regulations regarding uncontrolled runoff, there will need to be incentives and educational programs to encourage businesses and residential property owners to convert impervious surfaces or introduce landscaping that can help mitigate runoff.

Recommendation IA-8: Implement the city's phased stormwater management plan though the integrated and coordinated engagement of multiple city departments, commissions, local organizations, and individual business and residential property owners, in a concerted effort to reverse the current tendency to flush all stormwater directly into our lakes and waterways.

The importance of public education in improving stormwater management is just one example of the overall importance of education to the success of this plan. Our consultative planning process has demonstrated that local citizens, business owners, elected officials, and city employees do want to contribute to a greener, more sustainable community, but often lack the knowledge and understanding of how they can best do that. For some people, the scope of sustainability challenges seems so large, so complex, so insurmountable that the efforts of a single person or even a single community seem useless and inconsequential.

Of course, the reverse is true. Most sustainability goals can only be achieved in the day-to-day living of individuals and their engagement with others who eventually come together as a community in concerted green action. From this kind of peer engagement to print, media, and electronic materials on our Facebook page and websites, Green Ellsworth will need to organize a comprehensive marketing and educational program. Its website will need to be a repository of information: best practices, good models and examples of other related projects, relevant scientific and statistical data, maps, inventories, plant lists, links to helpful sites and publications. In conjunction with this, Green Ellsworth will continue to work with its partner organizations and committees to

coordinate and calendar the kind of public programs and targeted workshops for citizens and city employees that have been featured in the green planning process. Additionally, Green Ellsworth will need to cultivate and educate a cluster of citizen scientists capable of contributing to the various proposed research projects that will help us better understand and monitor our natural resources. The goal of such a program should be to take individuals who live and work in Ellsworth beyond an awareness of one particular aspect of our green planning agenda (e.g., alternative energy sources) to an understanding of ways in which their day-to-day decisions and actions can help us realize this plan's overall goal and vision.

Recommendation IA-9: Coordinate public marketing and educational programming to support the visions, goals, and objectives articulated across this plan as a whole.

Beyond a program of education for the general public and city employees, it will be critical to develop targeted curricular and extracurricular educational opportunities in all three of Ellsworth's public schools. Diversified learning relating to sustainability at multiple grade levels will have an especially significant impact on the long-range behavior and understanding of our future citizens. It can also have a more immediate impact on the behavior of parents and families as a whole. Although at least one of our schools uses an alternative heating source (geothermal) and a green roof, the school system as a whole could benefit from student attention to improving the environmental footprint of what are Ellsworth's largest and most expensive institutions. Students and teachers at other Hancock County schools have spearheaded such interventions with considerable success. Rather than simply serving the needs of a particular school, this kind of learning opportunity, especially at the high school level, can actually encourage students to consider a career in the many good-paying jobs that are emerging in old and new fields associated with sustainability. In setting up a cadre of young interns who support the work of A Climate to Thrive, that organization has provided an example of how Green Ellsworth can educate and engage young people in taking charge of their future.

Recommendation IA-10: Working with the school district and the schools as well as partner organizations, enhance current curricular, extracurricular, and experiential learning opportunities relating to the Green Plan's sustainability agenda.

III. An Integrated Approach to Project Development

Beyond using these cross-cutting and overarching recommendations that draw together related actions proposed across Chapters 1 through 4, we will also use an integrated approach to project development. Several large-scale projects proposed in this plan are already underway, and others will be initiated later in our ten-year period and carry on beyond it. Some of these larger projects are specific to particular focus areas, and others are referenced in more than one chapter:

- Branch Lake and Union River watershed surveys and management plans
- Waterfront revitalization from Harbor Park to the Union River Dam
- Stormwater management plan and renewal
- Card Brook watershed management plan, remediation, and conservation
- Implementation of an urban forestry program
- Sustainability review and revision of city ordinances
- Realization of the bike and pedestrian plan, including a Leonard Lake bike and pedestrian loop
- Realization of a municipal solar farm
- Realization of a permanent farmers' market

An integrated systems perspective needs to inform how we approach projects and what we actually do, so that we are consistently looking for ways to address objectives drawn from across this plan in small as well as large projects. An example of a particularly large project that has seemed insurmountable since before the 2004 Comprehensive Plan—the 2002 Waterfront Master Plan—helps highlight the effectiveness of this approach in facilitating community buy-in as well as in maximizing impact and funding opportunities. Initially the 2002 Waterfront Master Plan evolved as a mechanism for economic revitalization of Ellsworth's downtown core. It will indeed do that, but in the process it can conserve and restore shorefront property with historic and environmental significance. It can also address citizen priorities for greater recreational and commercial access to the river and the rich ecosystems it supports. Citizens as well as visitors will only be attracted to the river if it is, in fact, a healthy ecosystem—and that will require attention to polluting runoff from stormwater and snow dumps as well as the chowdered remains of dead fish emanating from dam turbines. Biodiverse plantings to restore native

trees and other vegetation, bioswales to control runoff, and the reduction of impervious surfaces in the waterfront area can all contribute to land and water conservation objectives. Together with an attractive walking path from Harbor Park to the dam, this project could attract significant local and external funding sources. In the process of constructing that walkway, the project can also address the need for shorefront erosion control, mitigation of buried pollutants, and sea level rise—all of which can appeal to other substantial funding sources.

And the sustainability potential does not stop there. It has been suggested that one of the shorefront commercial properties willing to relocate if waterfront revitalization goes forward would be an ideal location for a permanent farmers' market and possibly edible plantings free for the picking. Even in the original Waterfront Master Plan, waterfront revitalization was seen as an occasion to improve on the problems currently experienced by both vehicles and pedestrians on Water Street. By incorporating a public-transit stop; low, energy-efficient lighting; and a carry-in/carry-out waste management policy, revitalization of our waterfront could address nearly all aspects of this Green Plan—and in doing so, become financially more doable, make better use of human resources, and serve as a sustainable model that can help rebrand Ellsworth as a green community.

All proposed projects need not address all aspects of this Green Plan. However, by systematically beginning with the question "How will this project address the full range of sustainability objectives?" the process and product are likely to involve more integration of those objectives and more sustainable outcomes.

Conclusion

I. Vision

Despite the ambitious array of recommendations laid out in this plan, we need to acknowledge that even if we address them all by 2031, Ellsworth will still have a ways to go in realizing the community's vision of our city as a model green community. We do expect, however, that Ellsworth will be a greener, more sustainable place. It will look different and function differently. It will be:

• Doing a better job of monitoring its ground and surface water
• Protecting a working and accessible riverfront
• Conserving more healthy landscapes and watersheds
• Placing a higher priority on quality maintenance of its trees, parks, and cemeteries
• Offering more features of a walkable and bikeable community
• Experiencing less traffic congestion and more public-transit options
• Reducing the amount of waste and recyclables it processes
• Deriving fewer of its energy needs from fossil fuels
• Cultivating more viable local farms and food sources for all residents
• Sustaining the qualities of rural living while enjoying a vibrant city center
• Enjoying enhanced economic prosperity thanks to green businesses
• Striking a better balance between quality of life and commercial development

Most important, our response to sustainability issues will no longer be piecemeal, sporadic, or reactive but coordinated, sustained, and proactive. The strategic nature of any Green Plan actions will have brought social, environmental, and economic value to the community that far exceeds any costs. In contrast with a primarily opportunistic approach, this Green Plan should provide a basis for sound decisions leading to sustainable change with benefits that devolve in a socially just manner to all levels of the community.

II. Key Requirements for Success

Many actions outlined here will require follow-through by city government and elected officials, and many other actions will require follow-through by nonprofit partners and individual volunteers. Above all, each of these players—city government, nonprofit staff,

and citizens—will need to respect and draw on each other's strengths and qualifications while working together cooperatively.

Success will depend on a whole community approach—everyone at all levels asking basic sustainability questions to regularly inform decision making, actions, and projects. The appendices in this Green Plan (which list the recommendations, who is responsible for each action, and the required resources and time lines for the actions), together with checklists and numerous other online materials (collectively, Online Support Materials[139]), will facilitate this process. Effecting change will require having improved regulations and the enforcement of current and new regulations, and will also depend on education, incentives, and rewards to reinforce and profile good examples and best practices. Green Ellsworth will develop a system for recognizing businesses, schools, nonprofits, individuals, and families who officially embrace best green practices in key focus areas as well as our overall goals. It will also look to the city and local sponsors to provide incentives and rewards for "green stars" who make major contributions to realizing Green Plan objectives.

III. The Role of Green Ellsworth

Unlike one-off studies contracted from outside firms or completed by committees that are disbanded after their completion, this Green Plan has an ongoing organization charged with catalyzing, coordinating, and advocating for its implementation. Green Ellsworth will have four action teams—one for each of the four major topic areas in this plan—charged with overseeing the implementation of our recommendations, and a coordinating body, with representatives of major partner organizations, the four action teams, and supporting committees. The Green Ellsworth website and Facebook page will continue to function as key mechanisms for engaging and supporting both public and private greening efforts.

A key responsibility for Green Ellsworth will be to undertake a five-year assessment of progress in implementing Green Plan recommendations. This assessment will involve reviewing the effectiveness of key strategies, reevaluating priorities, and incorporating into our action plan any new areas of focus that require attention.

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[139] All Online Support Materials referenced in this plan can be found under the Green Plan and relevant action team or focus area pages at www.greenellsworth.org.

The compilation of this Green Plan involved nearly 100 people across 12 subcommittees who undertook public consultations, research, writing, fundraising, and small projects aligned with Green Plan objectives. Green Ellsworth will continue to draw on these individuals and the considerable professional expertise that many of them provided gratis, and will also make room for new individuals who have expressed interest in being involved in implementation. Green Ellsworth will also coordinate a wider volunteer base that has emerged through public consultations and programs, and through small projects such as the Card Brook cleanup, roadside cleanups, tree surveys, and school "Green Team" activities.

IV. Building Financial Capacity

Beyond being concerned with specific recommendations and objectives, both Green Ellsworth and the Green Plan itself are about building capacity across the breadth of sustainability focus areas. Although we are fortunate to have the city and several partner organizations with the mandate to address key recommendations in this plan, there is no one organization whose mandate encompasses the range of sustainability concerns identified by our citizens. Before the green planning process began, for instance, our energy, waste management, and food systems lacked any organizations whose mandates encompassed even the majority of those concerns. In other areas, individual nonprofits have come forward to take charge of and fund projects related to their mandate, and two organizations have raised significant funds to support the overall planning process. Now that we are moving from primarily a planning focus to an implementation focus, our work and long-range goals depend on building financial capacity that can sustain the Green Plan's action agenda over the next ten years and beyond.

Fundraising at the planning stage was important, because apart from netting more than $200,000, it demonstrated the capacity for sustainability objectives to generate significant funds from outside our community. This was further underscored by the expectation that all Green Plan recommendations should be supported with (1) an estimate of the financial resources required to address the recommendation and (2) potential funding sources for the recommendation—especially foundation, government, and agency funding. What emerges from the lists of funding sources is the opportunity the Green Plan presents for

our community to attract significant external funding to substantially improve our current and long-term sustainability and quality of life.

In several cases this funding must be accessed by the city. In other cases our current partner nonprofits may be best positioned to access funds. And in still other cases, this Green Plan has made provision for the development of new nonprofit organizations capable of raising funds for implementing recommendations outside the mandate of any existing organizations. Green Ellsworth will have an important role to play in coordinating and integrating these fundraising efforts and in building dedicated financial capacity across the community for the realization of its goals and vision.

V. Building Community Capacity

Beyond building the financial capacity to realize green planning objectives, Green Ellsworth and its partner organizations have the potential to leave an even more significant legacy. At the most fundamental level, this planning process has brought citizens together to generate neighbor-to-neighbor discussions about the type of community they want to live in, what its future should look like, and how that should relate to the future of our planet. Participants ranging from young families to octogenarians have come together to explore the levels of sustainability that should be transferred from one generation to another. Viewed through the socially distanced lens imposed by COVID-19, the green planning consultations and conversations may seem to be experiences from a different era, but as public engagement in the Maine Climate Council proceedings has demonstrated, virtual consultations and conversations—even those involving large numbers of people—can proceed effectively, and may actually facilitate broader engagement than in-person events. Certainly participation in Maine Climate Council proceedings and data indicate that, if anything, there may have been increased interest in sustainability issues during the time of COVID-19.

As a citizens' initiative, green planning for the City of Ellsworth has empowered individuals and organizations to take charge and assume responsibilities for creating the future of the community. The collective community input and the hundreds of hours donated by individuals committed to this project may generate impacts that reach beyond the immediate goals of the Green Plan. It has been said that good planning makes good communities. By leveraging significant human resources, and tapping into a community

will and commitment to making change in the city, Green Ellsworth has initiated a community discussion that has the potential to extend well beyond its sustainability focus to other issues related to social justice, place making, and community building.

We welcome all who have an interest in contributing to positive change in our community to join us in realizing the aspirations of this Green Plan. Everyone has a role to play in making Ellsworth a model green community.

CHAPTER 5
INTEGRATING ACTIONS

I. Introduction

The preceding chapters evolved out of targeted consultations and analysis of current conditions relating to aspects of Ellsworth's natural and human systems that were distilled down into four main topic areas. Each of those areas generated between 35 and 50-plus recommended actions, for which time lines, necessary resources, funding sources, and responsible parties have been designated (see the appendices). The four Green Ellsworth action teams, each one focused on one of our four major topic areas, will coordinate with partner organizations and others to see that these actions are addressed in as timely a manner as possible.

However, many of the issues and recommendations addressed across the previous chapters are closely interrelated and overlapping. What happens on land has a significant impact on our water resources, and together those ecosystems provide essential services that affect our local food systems and are equally affected by our transportation, energy, and waste management systems. Additionally, action on several specific recommendations is directly dependent on broader, facilitating actions that need to happen first.

Because human society and its systems exist within and depend on complex, integrated ecosystems, our sustainability as a community and as a society depends on a fundamental shift in perception and approach. Our human systems too often clash with the realities of our natural systems. We often see our water and land, and the resources related to them, primarily as raw materials for human consumption whose value is measured by what we can do with them or how we benefit from them. We need to transition to making the first consideration—at all levels of decision making—the relative environmental profit or expense of our actions. We need to systematically consider what actions are the best choice for the environment and how we can make our human systems more effective and less costly through greater integration with natural systems. Without this approach, we will continue to incur an increasing deferred and unsustainable debt within both our natural ecosystems and our human systems.

II. Overarching Recommendations

This Green Plan itself applies an integrated systems approach at several levels. On one level, we recognize that we need to coordinate our recommended actions with broader actions by key players such as city government. On another level, we take our cue from the complexity and interrelated nature of ecosystems and the players within them by identifying the ways in which multiple recommendations derived from each chapter may be best addressed by drawing together parallel initiatives into overarching strategies. We see this integration as contributing to a more efficient and ultimately more effective way of achieving our overriding goal of making Ellsworth a greener community.

For instance, Chapters 1 through 4 specifically identify ways in which city government can bring its current practices, procedures, regulations, and structures more in line with the desires of its citizens for an increasingly sustainable community. This plan lays out the principles and objectives that green planning participants want the city to embrace. By integrating the recommendations from across this plan that specifically require major action by city government, Green Ellsworth can help the city develop a road map for how it can begin to move toward greater sustainability. The city should also designate a sustainability coordinator to work with its departments and elected officials to ensure that the principles and objectives for a greener city are integrated across every level of government.

Recommendation IA-1: With the assistance of Green Ellsworth, adopt and operationalize a City of Ellsworth Sustainability Framework drawing on the principles and recommendations laid out in the Green Plan.

Recommendation IA-2: Designate a sustainability coordinator to assist in implementing the city's Sustainability Framework and integrating its principles and objectives across all levels of government.

From the earliest involvement of the city's Planning Department in the development of this Green Plan, it was anticipated that the Sustainability Framework created as a result of the green planning process would provide the context and a mandate out of which a revised comprehensive plan would emerge. Given that the city's current comprehensive plan is now 16 years old, renewing that plan is imperative for the city to be able to follow through on many Green Plan recommendations. A revised comprehensive plan needs to lay the groundwork for ordinance changes and many other critical initiatives. On a fiscal

level, access to state-managed funding sources that will be important for implementing our Green Plan recommendations will also be affected if the city is not able to secure "preferred status" by creating an up-to-date plan deemed "consistent" with the goals of the state's Growth Management Act.[140] In the past decade, the act's specific requirements for comprehensive plans and their consistency with state goals and expectations underwent significant changes. Consequently, Ellsworth's 2004 Comprehensive Plan is out of date at both the local and state levels. The good news is that the state expectations are closely aligned with the vast majority of goals, principles, and recommendations in this plan.

Recommendation IA-3: With assistance from Green Ellsworth, expeditiously update the city's 2004 Comprehensive Plan to be consistent with a Sustainability Framework derived from this Green Plan and the state's Growth Management Act.[141]

Across this plan, examination of key focus areas results in numerous recommendations for changes to the city's zoning and ordinances, particularly the Unified Development Ordinance (UDO). In the process of revising the required Land Use Plan for the comprehensive plan, it will be important to address these recommendations and ultimately implement the necessary changes to zoning, the UDO, and other ordinances.

Recommendation IA-4: In creating the required Land Use Plan component of the revised comprehensive plan, address related Green Plan recommendations from Chapters 1 through 4 and then implement this Land Use Plan by substantially revising city zoning, the UDO, and other ordinances and regulations.

A major concern throughout our planning process has been to look for ways in which our sustainability objectives can in fact reduce costs to the city and enhance its revenue by identifying strategies for securing external funds that will augment tax revenue, provide employment for our citizens, and reduce the deferred debt and tax burden for future generations—especially as related to upgrading our aging road, water, and stormwater

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140 See www.maine.gov/dacf/municipalplanning/docs/ch208_annotated_2014.pdf. Competitive grant programs for which "preferred status" applies include Community Development Block Grants, Land for Maine's Future, Municipal Investment Trust Fund, DEP 319(h) Non-Point Source Protection Grants, DEP State Revolving Loan Fund, Land and Water Conservation Fund, and SPO Plan Implementation Grants.

141 See Online Support Materials under the Green Plan and relevant action team or focus area pages at www.greenellsworth.org for examples of such data: the build-out analysis, green spaces inventory and landscape surveys, green spaces and historical sites map, zoning and soils mapping and analysis, pedestrian crossings inventory, tree surveys, etc.

infrastructure. However, many of the recommendations in this plan will require financial allocations from the city. In most cases this will involve modest sums, to show that the city has sufficient "skin in the game" to leverage grant funding or somewhat larger amounts to make up a required percentage of a project budget in order to qualify for government programs. In other cases, as with road improvements, for instance, funding will need to come exclusively from city revenue over a phased period of time. With all of this in mind, we see fiscal sustainability as being closely linked with our objective of sustainable development. The city needs to critically examine its approach to development, the relative diversification of its revenue streams, and the actual impact of its annual investments in the community compared with the benefits to and priorities of its citizens.

Recommendation IA-5: Commission a fiscal impact analysis that involves community consultation, to facilitate tax–benefit alignment and an understanding of citizen priorities so as to provide a grounding for City Council budget deliberations.

Key to realizing our sustainability goals is recognizing that none of the major systems referenced in this plan respect official borders. The sustainability of our water, land, food, transportation, energy, and waste management systems depends on our capacity to work with other municipalities, agencies, and organizations whose policies also affect those systems. While there may be a need for networks focused on specific systems (as noted in other chapters), their interrelated nature calls for the development of a countywide (or possibly even regional) Sustainable Development Network to manage our shared resources. Although this would most likely be a loose, informal network, it could facilitate the sharing of information, development of joint initiatives, grant funding, and coordination of policies or planning involving adjacent resources. It could result in the kind of "regional coordination program" specifically called for in the state's comprehensive plan guidelines. The recent introduction of electric vehicle charging stations in Ellsworth thanks to an initiative launched by A Climate to Thrive based on Mount Desert Island provides an example of the mutual benefits to be derived from such collaborations. In particular, it makes sense for the three sustainability initiatives currently underway in Hancock County (in Ellsworth, on MDI, and on the Blue Hill peninsula) to work together for mutual success. Another recent initiative by A Climate to

Thrive involving Hancock County commissioners demonstrates a willingness at the county level to participate in sustainability projects, and as the shire town and service center for the county, Ellsworth has an important role to play in facilitating such efforts.

Recommendation IA-6: Bring together a countywide Sustainable Development Network that includes similarly mandated organizations, municipalities, and relevant countywide organizations to share information and foster coordinated sustainability initiatives.

A common concern across all four of the preceding chapters is stormwater management. It is the point at which erosion of the land affects our precious water resources, and where repurposed and failing human systems for drainage above- and belowground can benefit from greater attention to the topography of the land, trees, and other green infrastructure, including historic farmland. Because of rising sea levels and increasingly violent storms, the immediate local impact of stormwater literally brings home the importance of shifting to alternative energy sources and away from fossil fuels. Ongoing denial of this increasing problem and failure to address it from the integrated perspective suggested here constitute an unsustainable deferred debt for future generations that could have catastrophic results for our community. This cannot be the sole responsibility of the city's Public Works Department. The city needs to bring together key parties to this plan (e.g., Downeast Salmon Federation, Frenchman Bay Conservancy, the Ellsworth Garden Club, and lake associations) and others to develop a phased, multidimensional stormwater management plan that shifts the focus to one clear goal: the retention and filtering of as much runoff as possible.

Recommendation IA-7: Develop a phased and integrated stormwater management plan for the city that involves not only upgrading the road and underground infrastructure, but also reducing and limiting impervious surfaces and using conserved and landscaped green infrastructure.

Successful implementation of this plan will require similarly diverse engagement from the community as well as city departments. While Public Works will need to refurbish underground systems and replace undersized culverts through road improvements, the Planning Department will need to make significant changes to the UDO (especially Chapter 56, Article 10, which relates to parking and impervious surfaces). The Planning Department will also need to work with the city's new parks and recreation specialist and

other knowledgeable people from Frenchman Bay Conservancy and the Ellsworth Garden Club to strategically conserve green spaces, augment and redesign more functional landscaping, and maintain it effectively. In addition to the need for the DEP and Code Enforcement Office to enforce regulations regarding uncontrolled runoff, there will need to be incentives and educational programs to encourage businesses and residential property owners to convert impervious surfaces or introduce landscaping that can help mitigate runoff.

Recommendation IA-8: Implement the city's phased stormwater management plan though the integrated and coordinated engagement of multiple city departments, commissions, local organizations, and individual business and residential property owners, in a concerted effort to reverse the current tendency to flush all stormwater directly into our lakes and waterways.

The importance of public education in improving stormwater management is just one example of the overall importance of education to the success of this plan. Our consultative planning process has demonstrated that local citizens, business owners, elected officials, and city employees do want to contribute to a greener, more sustainable community, but often lack the knowledge and understanding of how they can best do that. For some people, the scope of sustainability challenges seems so large, so complex, so insurmountable that the efforts of a single person or even a single community seem useless and inconsequential.

Of course, the reverse is true. Most sustainability goals can only be achieved in the day-to-day living of individuals and their engagement with others who eventually come together as a community in concerted green action. From this kind of peer engagement to print, media, and electronic materials on our Facebook page and websites, Green Ellsworth will need to organize a comprehensive marketing and educational program. Its website will need to be a repository of information: best practices, good models and examples of other related projects, relevant scientific and statistical data, maps, inventories, plant lists, links to helpful sites and publications. In conjunction with this, Green Ellsworth will continue to work with its partner organizations and committees to coordinate and calendar the kind of public programs and targeted workshops for citizens and city employees that have been featured in the green planning process. Additionally,

Green Ellsworth will need to cultivate and educate a cluster of citizen scientists capable of contributing to the various proposed research projects that will help us better understand and monitor our natural resources. The goal of such a program should be to take individuals who live and work in Ellsworth beyond an awareness of one particular aspect of our green planning agenda (e.g., alternative energy sources) to an understanding of ways in which their day-to-day decisions and actions can help us realize this plan's overall goal and vision.

Recommendation IA-9: Coordinate public marketing and educational programming to support the visions, goals, and objectives articulated across this plan as a whole. Beyond a program of education for the general public and city employees, it will be critical to develop targeted curricular and extracurricular educational opportunities in all three of Ellsworth's public schools. Diversified learning relating to sustainability at multiple grade levels will have an especially significant impact on the long-range behavior and understanding of our future citizens. It can also have a more immediate impact on the behavior of parents and families as a whole. Although at least one of our schools uses an alternative heating source (geothermal) and a green roof, the school system as a whole could benefit from student attention to improving the environmental footprint of what are Ellsworth's largest and most expensive institutions. Students and teachers at other Hancock County schools have spearheaded such interventions with considerable success. Rather than simply serving the needs of a particular school, this kind of learning opportunity, especially at the high school level, can actually encourage students to consider a career in the many good-paying jobs that are emerging in old and new fields associated with sustainability. In setting up a cadre of young interns who support the work of A Climate to Thrive, that organization has provided an example of how Green Ellsworth can educate and engage young people in taking charge of their future.

Recommendation IA-10: Working with the school district and the schools as well as partner organizations, enhance current curricular, extracurricular, and experiential learning opportunities relating to the Green Plan's sustainability agenda.

III. An Integrated Approach to Project Development

Beyond using these cross-cutting and overarching recommendations that draw together related actions proposed across Chapters 1 through 4, we will also use an integrated approach to project development. Several large-scale projects proposed in this plan are already underway, and others will be initiated later in our ten-year period and carry on beyond it. Some of these larger projects are specific to particular focus areas, and others are referenced in more than one chapter:

- Branch Lake and Union River watershed surveys and management plans
- Waterfront revitalization from Harbor Park to the Union River Dam
- Stormwater management plan and renewal
- Card Brook watershed management plan, remediation, and conservation
- Implementation of an urban forestry program
- Sustainability review and revision of city ordinances
- Realization of the bike and pedestrian plan, including a Leonard Lake bike and pedestrian loop
- Realization of a municipal solar farm
- Realization of a permanent farmers' market

An integrated systems perspective needs to inform how we approach projects and what we actually do, so that we are consistently looking for ways to address objectives drawn from across this plan in small as well as large projects. An example of a particularly large project that has seemed insurmountable since before the 2004 Comprehensive Plan—the 2002 Waterfront Master Plan—helps highlight the effectiveness of this approach in facilitating community buy-in as well as in maximizing impact and funding opportunities. Initially the 2002 Waterfront Master Plan evolved as a mechanism for economic revitalization of Ellsworth's downtown core. It will indeed do that, but in the process it can conserve and restore shorefront property with historic and environmental significance. It can also address citizen priorities for greater recreational and commercial access to the river and the rich ecosystems it supports. Citizens as well as visitors will only be attracted to the river if it is, in fact, a healthy ecosystem—and that will require attention to polluting runoff from stormwater and snow dumps as well as the chowdered remains of dead fish emanating from dam turbines. Biodiverse plantings to restore native trees and other vegetation, bioswales to control runoff, and the reduction of impervious

surfaces in the waterfront area can all contribute to land and water conservation objectives. Together with an attractive walking path from Harbor Park to the dam, this project could attract significant local and external funding sources. In the process of constructing that walkway, the project can also address the need for shorefront erosion control, mitigation of buried pollutants, and sea level rise—all of which can appeal to other substantial funding sources.

And the sustainability potential does not stop there. It has been suggested that one of the shorefront commercial properties willing to relocate if waterfront revitalization goes forward would be an ideal location for a permanent farmers' market and possibly edible plantings free for the picking. Even in the original Waterfront Master Plan, waterfront revitalization was seen as an occasion to improve on the problems currently experienced by both vehicles and pedestrians on Water Street. By incorporating a public-transit stop; low, energy-efficient lighting; and a carry-in/carry-out waste management policy, revitalization of our waterfront could address nearly all aspects of this Green Plan—and in doing so, become financially more doable, make better use of human resources, and serve as a sustainable model that can help rebrand Ellsworth as a green community.

All proposed projects need not address all aspects of this Green Plan. However, by systematically beginning with the question "How will this project address the full range of sustainability objectives?" the process and product are likely to involve more integration of those objectives and more sustainable outcomes.

Conclusion

I. Vision

Despite the ambitious array of recommendations laid out in this plan, we need to acknowledge that even if we address them all by 2031, Ellsworth will still have a ways to go in realizing the community's vision of our city as a model green community. We do expect, however, that Ellsworth will be a greener, more sustainable place. It will look different and function differently. It will be:

• Doing a better job of monitoring its ground and surface water
• Protecting a working and accessible riverfront
• Conserving more healthy landscapes and watersheds
• Placing a higher priority on quality maintenance of its trees, parks, and cemeteries
• Offering more features of a walkable and bikeable community
• Experiencing less traffic congestion and more public-transit options
• Reducing the amount of waste and recyclables it processes
• Deriving fewer of its energy needs from fossil fuels
• Cultivating more viable local farms and food sources for all residents
• Sustaining the qualities of rural living while enjoying a vibrant city center
• Enjoying enhanced economic prosperity thanks to green businesses
• Striking a better balance between quality of life and commercial development

Most important, our response to sustainability issues will no longer be piecemeal, sporadic, or reactive but coordinated, sustained, and proactive. The strategic nature of any Green Plan actions will have brought social, environmental, and economic value to the community that far exceeds any costs. In contrast with a primarily opportunistic approach, this Green Plan should provide a basis for sound decisions leading to sustainable change with benefits that devolve in a socially just manner to all levels of the community.

II. Key Requirements for Success

Many actions outlined here will require follow-through by city government and elected officials, and many other actions will require follow-through by nonprofit partners and individual volunteers. Above all, each of these players—city government, nonprofit staff,

and citizens—will need to respect and draw on each other's strengths and qualifications while working together cooperatively.

Success will depend on a whole community approach—everyone at all levels asking basic sustainability questions to regularly inform decision making, actions, and projects. The appendices in this Green Plan (which list the recommendations, who is responsible for each action, and the required resources and time lines for the actions), together with checklists and numerous other online materials (collectively, Online Support Materials[142]), will facilitate this process. Effecting change will require having improved regulations and the enforcement of current and new regulations, and will also depend on education, incentives, and rewards to reinforce and profile good examples and best practices. Green Ellsworth will develop a system for recognizing businesses, schools, nonprofits, individuals, and families who officially embrace best green practices in key focus areas as well as our overall goals. It will also look to the city and local sponsors to provide incentives and rewards for "green stars" who make major contributions to realizing Green Plan objectives.

III. The Role of Green Ellsworth

Unlike one-off studies contracted from outside firms or completed by committees that are disbanded after their completion, this Green Plan has an ongoing organization charged with catalyzing, coordinating, and advocating for its implementation. Green Ellsworth will have four action teams—one for each of the four major topic areas in this plan—charged with overseeing the implementation of our recommendations, and a coordinating body, with representatives of major partner organizations, the four action teams, and supporting committees. The Green Ellsworth website and Facebook page will continue to function as key mechanisms for engaging and supporting both public and private greening efforts.

A key responsibility for Green Ellsworth will be to undertake a five-year assessment of progress in implementing Green Plan recommendations. This assessment will involve reviewing the effectiveness of key strategies, reevaluating priorities, and incorporating into our action plan any new areas of focus that require attention.

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[142] All Online Support Materials referenced in this plan can be found under the Green Plan and relevant action team or focus area pages at www.greenellsworth.org.

The compilation of this Green Plan involved nearly 100 people across 12 subcommittees who undertook public consultations, research, writing, fundraising, and small projects aligned with Green Plan objectives. Green Ellsworth will continue to draw on these individuals and the considerable professional expertise that many of them provided gratis, and will also make room for new individuals who have expressed interest in being involved in implementation. Green Ellsworth will also coordinate a wider volunteer base that has emerged through public consultations and programs, and through small projects such as the Card Brook cleanup, roadside cleanups, tree surveys, and school "Green Team" activities.

IV. Building Financial Capacity

Beyond being concerned with specific recommendations and objectives, both Green Ellsworth and the Green Plan itself are about building capacity across the breadth of sustainability focus areas. Although we are fortunate to have the city and several partner organizations with the mandate to address key recommendations in this plan, there is no one organization whose mandate encompasses the range of sustainability concerns identified by our citizens. Before the green planning process began, for instance, our energy, waste management, and food systems lacked any organizations whose mandates encompassed even the majority of those concerns. In other areas, individual nonprofits have come forward to take charge of and fund projects related to their mandate, and two organizations have raised significant funds to support the overall planning process. Now that we are moving from primarily a planning focus to an implementation focus, our work and long-range goals depend on building financial capacity that can sustain the Green Plan's action agenda over the next ten years and beyond.

Fundraising at the planning stage was important, because apart from netting more than $200,000, it demonstrated the capacity for sustainability objectives to generate significant funds from outside our community. This was further underscored by the expectation that all Green Plan recommendations should be supported with (1) an estimate of the financial resources required to address the recommendation and (2) potential funding sources for the recommendation—especially foundation, government, and agency funding. What emerges from the lists of funding sources is the opportunity the Green Plan presents for

our community to attract significant external funding to substantially improve our current and long-term sustainability and quality of life.

In several cases this funding must be accessed by the city. In other cases our current partner nonprofits may be best positioned to access funds. And in still other cases, this Green Plan has made provision for the development of new nonprofit organizations capable of raising funds for implementing recommendations outside the mandate of any existing organizations. Green Ellsworth will have an important role to play in coordinating and integrating these fundraising efforts and in building dedicated financial capacity across the community for the realization of its goals and vision.

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will and commitment to making change in the city, Green Ellsworth has initiated a community discussion that has the potential to extend well beyond its sustainability focus to other issues related to social justice, place making, and community building.

We welcome all who have an interest in contributing to positive change in our community to join us in realizing the aspirations of this Green Plan. Everyone has a role to play in making Ellsworth a model green community.

APPENDICES

Appendix: Index to Abbreviations

ACE--Army Corp of Engineers
ACTT--A Climate to Thrive
BBH--Black Bear Hydro Partners (Brookfield)
BHHT—Blue Hill Heritage Trust
BHRFS--Blue Hill Reversing Falls Sanctuary
BLAI—Branch Lake Association Incorporated
EBOF – Ellsworth-area business owners and farmers
CC—Ellsworth Area Chamber of Commerce
City—City of Ellsworth (including, as appropriate to specific recommendations, City Council and staff, the Budget Committee, the Harbor Commission, Recreation Commission, Historic Preservation Commission, Tree Commission, Public Works, Planning Office, Planning Board, Code Enforcement Office, Cemeteries Board, Parks and Recreation Department, School Department)
COA—College of the Atlantic
DEP—Maine Department of Environmental Protection
DMR—Maine Department of Marine Resources
DOT--Maine Department of Transportation
DFH – Downeast Food Hub
DSF—Downeast Salmon Federation
EMDC – Eastern Maine Development Corporation
EBDC – Ellsworth Business Development Corporation
EFM – Ellsworth Farmers Market
EGAT—Ellsworth Green Action Team
EHS-Ellsworth Historical School
EGC – Ellsworth Garden Club
EMMS-Ellsworth Elementary Middle School
EPA—US Environmental Protection Agency
EPF—Ellsworth Parks Foundation
FERC--Federal Energy Regulatory Commission
FoGL—Friends of Graham Lake
GE—Green Ellsworth
GEF—Green Ellsworth Food and Farming Team
GEI—Green Ellsworth Infrastructure Team
GEL—Green Ellsworth Land Action Team
GEW—Green Ellsworth Water Action Team
GLWPC--Green Lake Water Power Company
HA—Healthy Acadia
HCC-Hancock County Commissioners
HCLA—Hancock County Lakes Association
HCPC—Hancock County Planning Commission
HCSWCS—Hancock County Soil and Water Conservation District
HoE—Heart of Ellsworth
HS--Ellsworth High School Students

II--Island Institute
LSM—Lake Stewards of Maine
MAC – Maine Agriculture in the Classroom
MACF – Maine Department of Agriculture, Conservation and Forestry
MDIBio—Mount Desert Island Biological Laboratory
MDOT—Maine Department of Transportation
MEFTI – Maine Farm to Institution
MEMA—Maine Emergency Management Agency
MFT—Maine Farmland Trust
MGV—Hancock County Cooperative Extension, University of Maine, Master Garden Volunteer Program
ML--Maine Legislature
MLS—Maine Lakes Society
MMNP—Maine Master Naturalist Program
NOAA--National Oceanic and Atmospheric Administration
OSI—Open Space Institute
RA--Road Associations
SWS—Stanwood Wildlife Sanctuary
UMCE – University of Maine Cooperative Extension
UMO—University of Maine at Orono
VGOL – Various government officials/legislators
WL--Woodlawn

APPENDIX 1

AN OVERVIEW OF ELLSWORTH GREEN PLAN RECOMMENDATIONS 2021-2031

APPENDIX 1 Overview of Ellsworth Green Plan Recommendations			
Recommendations	**Project Start Date** **(1) now**; in progress or begins **2021** **(2) short**-term; begins 2022-2024 **(3) medium**-term; begins 2025-2027 **(4) long**-term; begins 2028-2031 **(+) project ongoing** from start date	**Group(s) w/Primary Responsibility (see Index of Abbreviations for full details)**	**Green Ellsworth Volunteers Needed**
Water			
Foundation for Understanding			
W-1 comprehensive monitoring of resources	1-now+	GEW/HCSWCD/HCLA/LSA/City	✓
W-2 informational and educational programming	1-now+	GEW/HCSWCD/HCLA/LSA/City	✓
W-3 convene a network of interested parties	1-now+	GEW/HCSWCD/HCLA/HCPC/City	✓
Access to Clean Drinking Water			
W-4 comprehensive Branch Lake water testing	2-short+	GEW/BLAI/City	✓
W-5 pave public-maintained Branch Lake roads	2 short	City	
W-6 improve/maintain private Branch Lake roads	2-short	RA/BLAI	✓
W-7 implement other measures to limit NPSP	1-now+	City/BLAI	✓
W-8 Branch Lake watershed survey/management plan	1-now	BLAI/City/DEP/HCSWD	✓
W-9 restrictions on private boat ramps on Branch Lake	1-now+	City/BLAI/HCSWD	✓
W-10 prohibit float planes on Branch Lake	2-short	City/BLAI	
W-11 repair and regularly inspect Branch Lake dam	2-short+	BLAI/City/MEMA	
W-12 water demand study	1-now	City	
W-13 phased implementation of water strategy	2-short+	City	
W-14 well water study and encourage testing	1-now	GEW/MDIBio/HA/City	✓
W-15 gravel pit ordinance and monitoring	2-short	City	
Healthy Lakes and Ponds			
W-16 extend water testing to other lakes	2-short+	GEW/LA/LSM/City	✓
W-17 support invasive plant patrols on all lakes	1-now+	HCLA/ LA/ LSM/City	✓
W-18 develop 3-prong approach to minimize NPSP	2-short+	LA/City/MLS	✓
W-19 10% waterfront = Lakesmart certified	1-now	LA/MLS	✓
W-20 restore code enforcement staffing to 3 total	2-short	GE/City	
W-21 develop lake road association network	2-short+	HCPC/HCSWCD/LA/RA/MLS/City	✓
W-22 dam relicensing requirements	1-now+	BBH/GLWPC/FERC/DEP/DSF	
W-23 request that DEP establish clear numerical water quality standards	1-now	FoGL/DEP/DSF	✓
W-24 monitor/enforce impoundment water quality	1-now+	BBH/City/DSF/DEP/FoGL	✓
W-25 advocate for effective fish passage on Union River	1-now+	DSF/DEP/DMR/NOAA	
Union River Waterfront and Watershed			
W-26 update waterfront master plan	1-now	City/FBC/DSF/HoE/CC/GEW	✓
W-27 co-organize SLR workshop for Ellsworth	1-now	GEW/City/II	✓
W-28 implement waterfront plan	2-short+	City/GEW/GEL/FBC/HoE/DSF	✓
W-29 coordinate efforts to create riverwalk and access	1-now	GEW/GEL/FBC/EGC/HoR/City	✓
W-30 support Museum in the Streets	1-now	City/EHS	✓
W-31 rebranding of Union River w/festival	2-short	HoE/CC/DSF/EHS/City	✓
W-32 designate waterfront as historic district	2-short	City/EHS/HoE	✓
W-33 designation of Union River as historic corridor	2-short	HCPC/DSF	✓
W-34 survey stormwater runoff below Leonard Lake	3-medium	City/HCSWCD/DEP	✓
W-35 river and shoreline toxic site clean-up	3-medium	City/HCSWCD/DEP	
W-36 dredging of river to address sediment buildup	4-long	City/ACE	
W-37 watershed survey and updates	3-medium	DSF/HCPC/DEP/HCSWCD/LA	✓
W-38 develop Union River watershed management plan	3-medium	DSF/HCSWCD/HCPC	
W-39 inspect and require repair of all dams	4+-long	GEW/HCPC/MEMA	✓

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W-40 post available data on Union River dams	1-now+	GEW	✓
W-41 legislation to make dam inspection data available	2-short	GEW/ML	✓
Stormwater Management and Infrastructure			
W-42 formally conserve Card Brook and its wetlands	2-short+	FBC/City/GEW/DSF/HCSWCD	✓
W-43 Card Brook watershed survey + management plan	2-short+	City/FBC/DSF/HCSWCD/GEW	✓
W-44 implement Card Brook watershed plan	2-short+	City/FBC/DSF/HCSWCD/GEW	✓
W-45 develop plan for stormwater infrastructure	2-short	City HCSWCD/EGC/MGV	✓
W-46 implementation of stormwater upgrade plan	3-medium+	City/EGC/MGV	✓
W-47 reduce stormwater runoff	1-now+	City/GEW	✓
Access to Water			
W-48 improve launch sites access, signage, maintenance	2-short	City/GEW	✓
W-49 seek funding for Leonard Lake trail	4-long+	City/FBC/HCPC/HA/GEW	✓
Community Engagement			
W-50 develop and train citizen scientist groups	2-short+	GEW/HCLA/LSM/HCSWCD/LA/DEP	✓
W-51 prioritize grant applications in partnerships	1-now+	City	
W-52 create seed fund for water-related projects	2-short+	City	
Land			
Overarching Recommendations			
L-1 strategy for balancing development & green space	1-now	City/GEL/HCPC	
L-2 develop green space management strategy	2-short	City /GEL/EPF/EGC/FBC	✓
L-3 improve awareness and use of green spaces	2-short	City/GEL/EPF/EGC/FBC	✓
L-4 Parks and Recreation staff	2-short	City	
L-5 establish Ellsworth Parks Foundation	2-short	GEL/EGC	✓
L-6 green spaces as educational sites	1-now+	GEL/City/EGC/MGV/MMNP	✓
Natural Green Infrastructure			
L-7 establish natural resource zone	2-short	City/GEL/FBC	
L-8 designate rural forestry zone	2-short	City/GEL/FBC	
L-9 implement open space acquisition fee	2-short	City/GEL	
L-10 discourage strip commercial + review open spaces	2-short+	City/GEL	✓
L-11 education for biodiversity protection	1-now+	EGC/GEL/HCSWCD	✓
L-12 develop green data	1-now+	GEL/MMNP/HS/COA/UMO	✓
Land Conservation			
L-13 conserve and protect 50% of land area	1-now+	City/GEL/FBC/BHHT/SWS/MFT	✓
L-14 conserve wetlands	1-now+	City/FBC/BHHT	✓
L-15 establish land conservation fund	2-short	City	
L-16 protect deer wintering areas and other habitats	1-now+	City/FBC	✓
L-17 provide for connections between natural areas	1-now+	City	✓
L-18 open protected land to public use	1-now+	FBC/BHHT/SWF/City/WL	✓
L-19 proactively contact land owners for conservation	1-now+	FBC/MFT/GEL/GEF	✓
L-20 zoning modification for conserved land	2-short+	City	
Trees			
L-21 develop a rural forestry plan	2-short	GEL/City/FBC	✓
L-22 revive city's Arbor Commission	1-now	City	✓
L-23 undertake canopy coverage assessment	1-now	City/GEL	✓
L-24 develop/implement urban forestry program	1-now+	City/GEL/EPF/EGC	✓

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L-25 create a city tree farm at Jordan Homestead	2-short	GEL/FBC/EGC/MGV	✓
Public Landscaping and Recreational Spaces			
L-26 invite green space stewards to request support	1-now+	City	✓
L-27 revise cemetary ordinance	2-short	City/EPF	
L-28 reappoint a Cemetery Board	2-short	City	✓
L-29 refurbish Leonard Lake outdoor classroom	2-short	City/EEMS/Rotary	✓
L-30 hire outdoor classroom coordinator	2-short+	City/HA/EPF	
L-31 clarify role of outdoor campuses in education	2-short	City/MMNP/MGV/EGC/FBC	✓
L-32 upgarde Harbor Park landscaping	3-medium	City/MGV/EGC	✓
L-33 upgrade landscaping along High Street	2-short	City/DOT/GEL/EGC/MGV	✓
L-34 enhance range and scope of park facilities	1-now+	City/EPF/GEL/EGC/MGV/FBC	✓
L-35 accessibility inventory and action plan	3-medium	City/EPF/EGC/FBC	
Trails and Corridors			
L-36 update pedestrian and bike plan	2-short	City/GEI/GEL/EPF/HCPC/FBC	
L-37 incremental implementation of Leonard Lake trail	2-short+	GEI/GEL/City	✓
Land Use Management and Leadership			
L-38 revise UDO performance standards	2-short	City/GEL	
L-39 comprehensive housing study	1-now	City/GEL	
L-40 develop proactive approach to historic preservation	2-short+	City/GEL	
Private Stewardship			
L-41 develop educational material for private stewardship	2-short	FBC/EGC/GEL	✓
L-42 recognition and incentives for stewardship	2-short+	GEL	✓
Community Access and Engagement			
L-43 revise charge for recreation commission	2-short	City	✓
L-44 engage voluteers in care of green spaces	1-now+	City/EPF/GEL/FBC/EGC/MGV	✓
Food and Farmers			
Overarching Recommendation			
F-1 create 501 (c)3 leadership organizatoin	1-now+	GEF	✓
Farms and Farmland			
F-2 inventory farmers and producers	2-short	GEF/DFH/HA	✓
F-3 protect farmlands in drinking water and rural zones	2-short+	City/GEF/DFH	
Conservation of Farmland			
F-4 assess amount of protected prime farmland soils	1-now	GEF/MFT/FBC	✓
F-5 coordinate farmland preservation efforts	2-short+	DFH/City/MFT	✓
F-6 connect would-be farmers and farmlands	2-short+	DFH/MFT/FBC	✓
Municipal Support for Farmers and Farming			
F-7 establish sustainability director	1-now	City/GE	✓
F-8 present GP farm and farmers results to city	1-now	GEF/DFH	✓
F-9 identify opportunities for community gardens	1-now+	HA/UMCE/DFH	✓
F-10 provide coordination for farmers' market	2-short+	DFH/City/EFM	✓
F-11 identify factors to strengthen farmers' markets	2-short	DFH/EFM	✓
F-12 secure permanent location for farmers' market	2-short+	HOE/City/DFH	✓
F-13 explore/facilitate Edible Main Street project	2-short	DFH/EGC/City	✓
F-14 Maine Farmland Trust test results to improve support	1-now	GEF/MFT/City	✓
F-15 advocate for agric. in updated Comp Plan	1-now	GEF/DFH/City	✓

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F-16 recruit people liaisons between market and city	2-short	DFH/EFM	✓
F-17 recruit farmers/stakeholders to serve on boards etc	2-short	DFH/HOE	✓
F-18 add sale of locally grown foods to econ dev strategies	1-now+	City/EBDC/GEF	✓
F-19 farm and open space tax program policy	2-short+	City/DFH	✓
F-20 promote expansion of city composting and use	1-now+	EGAT/DFH/City	✓
F-21 revise ordinances to support ag interests and homesteading	2-short+	DFH/City	✓
Combating Climate Change			
F-22 disseminate NCSI research results	2-short	MFT/DFH	✓
Addressing Socioeconomic Issues			
F-23 analysis of economic strengths and weaknesses	2-short+	DFH/HCPC/EMDC	✓
F-24 support equitable economics through food system	1-now+	City/HA/UMCE	✓
F-25 advocate including agriculture in school curriculums	1-now+	UMCE/HA/DFH	✓
F-26 access to education about healthy/local foods	1-now+	HA/UMCE/DFH	✓
F-27 advocate expansion of access to food/adequate nutrition	2-short+	DFH/VGOL	✓
F-28 assess if opportunity to expand Farm Fresh Rewards	2-short	DFH/MFT	✓
F-29 expand support of apple/agricultural festivals	2-short+	HOE/City/DFH	✓
F-30 expand farmer access to education/business opportunities	1-now+	GEF/DFH	✓
F-31 inventory food purchase/distribution strategies	2-short+	GEF/DFH/MEFTI	✓
F-32 support regional food distribution hub	4-long	DFH/MEFTI	✓
F-33 promote institutional purchasing/identify barriers	2-short+	DFH/MEFTI	✓
F-34 identify barriers/opportunities for use of tech tools	1-now+	GEF/UMO	✓
F-35 coordinate use of tech tools/reduce food waste	2-short+	DFH/UMO	✓
F-36 media campaign for positive perception of small farms	2-short+	DFH/HA/UMCE	✓
F-37 work at regional/state levels to reduce regulatory barriers	2-short+	DFH/VGOL/EBOF	✓
F-38 develop local support for PRIME act	1-now	GEF/VGOL	✓
F-39 advocate for USDA-certified local slaughterhouse	3-medium	DFH/MACF/USDA	✓
F-40 advocate for statewide food management law	3-medium	DFH/City/MACF	✓
F-41 advocate for state-level facilitation of food hubs	3-medium	DFH/MACF/VGOL	✓
Infrastructure			
Transportation-Overarching Considerations			
I-1 undertake comprehensive corridor study	1-now+	city/MDOT/GE	✓
I-2 review codes etc for better coordination with transportation	1-now+	city/GE	✓

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Transportation-Basic Traffic Management Issues			
I-3 develop system solutions for traffic flow	1-now+	city/MDOT/GE	✓
I-4 set aside the by-pass concept	1-now	city	✓
I-5 restrict truck traffic to appropriately designed streets	1-now+	city/MDOT/GE	✓
I-6 prohibit through truck traffic from local streets	1-now+	city/MDOT/GE	✓
I-7 prohibit engine-braking on major corridors	1-now+	city/MDOT/GE	✓
Transportation-Public Transportation			
I-8 catalog transit and create repository for information	1-now+	city/GE	✓
I-9 convene transit provider mtgs	1-now	city/GE	✓
I-10 explore new transit routes	2-short	city/GE	✓
I-11 assess need for extended intercity transit	2-short	city/GE	✓
I-12 designate bike routes and corridors	2-short	city/GE	✓
I-13 develop a sidewalk priority plan	2-short	city/GE	✓
I-14 establish annual budget for sidewalks	2-short+	city/GE	✓
I-15 plan/execute High Street ped demo project	2-short+	city/MDOT/GE	✓
Transportation-Drainage Issues			
I-16 develop a drainage priority plan	2-short	city/GE	✓
I-17 establish annual budget for drainage	2-short+	city/GE	✓
Energy and Conservation-Overarching Considerations			
I-18 create an energy advisory committee	1-now	city	✓
Energy and Conservation-Solar Energy			
I-19 develop/implement a citywide solar policy	1-now	city	✓
I-20 develop community energy farms	2-short	GE	✓
I-21 develop/adopt a Solarize Ellsworth program	2-short+	GE	✓
Energy and Conservation-Vehicle Efficiency			
I-22 policy for replacing municipal vehicles w/hybrid/electric	1-now+	city/GE	
I-23 policy to reduce idling of city and school vehicles	2 short	city/GE	
I-24 encourage development/deployment of EVs	3-medium	city/GE	✓
I-25 promote energy-efficient public transportation and other modes	3-medium	city/GE	✓
Energy and Conservation-Building Efficiency			
I-26 new energy ordinance consistent w/Maine Uniform Code	1-now+	city	✓
I-27 develop city energy policy for renovations	2-short	city	✓
I-28 weatherization partners	2-short+	city/GE	✓
Energy and Conservation-Community Education and Outreach			
I-29 develop energy education programs	2-short	GE	✓
I-30 public energy education	2-short	GE	✓
Solid Waste Management			
I-31 explore other plastic bans	1-now	GE	✓
I-32 expand recycling program	2-short	city/GE	
I-33 expand composting program	2-short	GE	✓
I-34 reconstitute solid waste committee	2-short	city/GE	✓
I-35 continue/expand grass roots clean-up initiatives	1-now	city/GE	✓
I-36 develop public education program	2-short	GE	✓

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Integrating Actions			
IA-1 adopt sustainable development plan for city	2-short+	GE/City	✓
IA-2 designate a sustainability coordinator	2-short	City	
IA-3 update comprehensive plan	1-now	City/GE	✓
IA-4 revise zoning, UDO & other ordinances consistent with comprehensive plan	2-short	City	✓
IA-5 fiscal impact analysis	2-short	City	
IA-6 develop a county-wide sust. dev. network	2-short+	GE/HCC/HCPC/ACTT/BHRFS	✓
IA-7 develop storm water management plan	2-short	City/GE/HCSWCD/FBC/EGC	✓
IA-8 implement storm water management plan	3-medium+	City/HCSWCD/GE	✓
IA-9 develop/market sustainability education program	1-now+	GE	✓
IA-10 curricular/ extra-curricular school programs	2-short+	City/GE/EGC/FBC/DSF/HA	✓

APPENDIX 2

AN ACTION PLAN FOR STRENGTHENING THE SUSTAINABILITY OF THE CITY OF ELLSWORTH 2021-2031

This action plan has been derived from the objectives and actions recommended by the Ellsworth Green Plan, which was the result of three years of community consultations and research 2017-2020. The first line of responsibility for implementation of the overall Green Plan and this action plan lies with Green Ellsworth and its four Action Teams for Water, Land, Food & Farmers and Infrastructure. However, its role in most cases will be primarily to provide a base of support and bring together and/or motivate responsible parties (those named below and others). The primary lead organization or organizations (whether Green Ellsworth, a specific Action Team or another organization) is/are listed first after "who" under each recommendation. The Action Teams will assure that responsible parties establish clear targets and measures of progress and monitor timelines. In some cases they will also assist in generating the expertise, volunteer support and financial resources necessary for specific recommendations to be addressed. Each Green Ellsworth Action Team will provide regular updates and an annual report on progress towards realizing its objectives and completing recommended actions.

CHAPTER 1. WATER Recommendations

A. A Foundation for Understanding and Protecting Our Water

Recommendation W-1: Facilitate and coordinate a comprehensive program for monitoring our water resources and publicly post resulting data and links for Ellsworth and the Union River watershed online.

Recommendation W-2: Coordinate informational materials and educational programming aimed at supporting and encouraging the best possible stewardship of the city's water resources.

Recommendation W-3: Convene a network of municipalities, lake associations, and other organizations and agencies with an interest in the Union River and Card Brook watersheds.

who: Green Ellsworth Water Action Team (GEW), Hancock County Soil and Water Conservation District (HCSWCD), Hancock County Lakes Association (HCLA), Lake Stewards of Maine(LSM), Maine Lakes Society(MLS), City of Ellsworth(City), Downeast Salmon Federation(DSF), MDI Biological Laboratory, Department of Envionrmental Protection(DEP), lake associations, Hancock County Planning Commission (HCPC)
necessary resources: $6000/year for printing and postage; no other resources beyond those noted below, staff and volunteer time
source: DEP/Environmental Pprotection Agency; Natural Resources Council of Maine; Maine Community Foundation; City of Ellsworth; Maine CDC, Division of Environmental and Community Health (Drinking Water Program); John Sage Foundation; Jesse P. Cox Foundation; Fields Pond Foundation; Davis Foundation; responsible organizations above
timeline: 2021-2031

B. Access to Clean Drinking Water

Recommendation W-4: Improve the extent, regularity, and public documentation of testing on Branch Lake, including the Winkumpaugh Cove and Tannery Brook areas.

who: City, Branch Lake Association (BLAI), HCSWCD, LSM
necessary resources: $10,000 for equipment; contracted and/or volunteer time; training for volunteers
source: City; BLAI; John Sage Foundation; Fields Pond Foundation; Maine Community Foundation; Maine CDC, Division of Environmental and Community Health (Drinking Water Program)
timeline: 2022 and ongoing

Recommendation W-5: Fully pave all publicly maintained roads around Branch Lake and construct or reconstruct all stream crossings to mitigate NPSP.

who: City
necessary resources: staff time and materials and/or contract; several million dollars
source: City, DEP Stream Crossing Upgrade Program & SRF program if financially warranted
timeline: 2022-2025

Recommendation W-6: Reconstruct and improve the maintenance of road association roads around Branch Lake to minimize NPSP. Maine Audubon's StreamSmart workshops and educational programs regarding best management practices should be a major resource for this effort.

who: Road associations (RA), BLAI, HCSWCD, Maine Audubon/StreamSmart program
necessary resources: volunteers and otherwise undetermined
source: road associations, BLAI
timeline: 2022-2026

Recommendation W-7: Coordinate efforts to reduce threats of NPSP through the introduction of improved ordinances; better enforcement; incentives and rewards for best practices; and education and training to mitigate the impact of stormwater runoff, inadequate plumbing, and the current rate and intensity of development on Branch Lake.

who: City, BLAI, MLS, HCSWCD
necessary resources: volunteer time for coordination and promotion but otherwise none beyond related recommendations proposed elsewhere
source: responsible partners
timeline: 2021-2031

Recommendation W-8: Undertake a Branch Lake watershed survey and then watershed management plan as soon as possible, and update both at least every ten years.

who: BLAI, DEP, HCSWCD, City
necessary resources: $25,000 for Watershed Survey; $5,000 for management plan
source: DEP/EPA (Small Community Grant Program, 319 Grant Program), City (Envirogrant, Public Water revenue, and shorefront property tax dollars), Maine Community Foundation
timeline: 2021 Watershed Survey, Management Plan 2022

Recommendation W-9: Reduce the risk of introducing IAPs at private boat ramps on Branch Lake by using a multifaceted approach: restricting allowable use (including a required clause in rental agreements); stipulating fines for rental and other property owners who fail to follow and enforce the restrictions; offering educational materials regarding the dangers of IAPs at private boat ramps; and encouraging the closure of those ramps using available grant programs.

who: City, BLAI, HCLA, HCSWD
necessary resources: educational print material, $1000 (with link to online details; volunteer & staff time
source: responsible parties
timeline: 2021-2031

Recommendation W-10: Prohibit the use of Branch Lake by float planes.

who: City, GEW
necessary resources: none
source: not relevant
timeline: 2022

Recommendation W-11: Repair and regularly inspect the Branch Lake dam.

who: City; BLAI; Maine Emergency Management Agency (MEMA), Maine Dam Safety Program
necessary resources: undetermined until an inspection is done; inspection is free
source: responsible parties, possibly Maine Dam Safety Program (Dam Repair and Reconstruction Fund)
timeline: 2022 for inspection, 2023-2024 for any necessary repairs

Recommendation W-12: Commission a study to determine the long-term demand for public water and develop a phased strategy for improving the public water infrastructure.

who: City
necessary resources: $20,000 in conjunction with revision of Comprehensive Plan
source: City of Ellsworth; Maine Department of Health and Human Services, Drinking Water Program, Capacity Development Grant
timeline: 2021-2022

Recommendation W-13: Begin phased implementation of the public water strategy.

who: City
necessary resources: to be determined through study but most likely several million dollars
source: City of Ellsworth; Maine Department of Health and Human Services, Drinking Water Program, Capacity Development Grant; Maine Office of Community Development, USDA Rural Development, US Economic Development Administration; State Revolving Fund
timeline: 2023 through at least 2031

Recommendation W-14: Work with the MDI Biological Laboratory to facilitate a study of well water in Ellsworth, and promote a regular educational program for schoolchildren and the public that encourages residents to have wells tested every three to five years.

who: MDI Biological Laboratory, Healthy Acadia (HA), City
necessary resources: $50,000
source: National Institutes of Health, General Medical Sciences, Partnership Award (grant in hand), City of Ellsworth Enviro-grant, EPA Healthy Communities Grant, responsible partners
timeline: 2021-2024

Recommendation W-15: Introduce an ordinance that establishes standards beyond the minimum required by the state with respect to such things as the location, size, and depth relative to the water table of gravel pits, and couple this ordinance with periodic monitoring and proactive inspections by publicly contracted qualified personnel paid for by fees charged to gravel pit operators.

who: City
necessary resources: fees for inspection and photography
source: covered by increased fees charged to gravel pit owners
timeline: 2023

C. Healthy Lakes and Ponds

Recommendation W-16: Extend regular and comprehensive testing of water quality, dissolved oxygen, temperature, and clarity to all Ellsworth lakes and ponds, with the goal of improving or maintaining levels recommended for the relevant type of water body.

who: GEW, lake associations, LSM, City, HCSWCD, DEP
necessary resources: equipment $10,000/per year until all lakes are serviced,
source: City; lake associations; Davis Foundation; Fields Pond Foundation; Fisher Charitable Foundation, possibly DEP NPS Pollution grants for watershed protection plans and implementation; Maine Community Foundation
timeline: 2022 and ongoing until all lakes are being regularly tested

Recommendation W-17: Support regular CBI and IPP programs for Ellsworth's lakes and ponds. These programs should be augmented by efforts to discourage or prevent the use of private ramps for boats not owned by the property owner and to limit or eliminate float plane landings.

who: HCLA, BLAI (as mentor/model), other lake associations, LSM, City, HCSWCD, Lakes Environmental Association, DEP
necessary resources: $4000/lake; training of volunteers,
source: Lakes Environmental Association, DEP Invasive Aquatic Plant Program, and other responsible partners
timeline: 2021 and ongoing

Recommendation W-18: Develop a three-pronged approach to minimizing NPSP in our lakes and ponds: (1) a regular program for educating property owners, contractors, and road associations regarding best management practices to control stormwater runoff; (2) proactive enforcement of existing ordinances; and (3) revision or introduction of additional ordinances to better control such things as road and driveway construction, roof drainage, and plumbing.

who: City, lake associations, MLS
necessary resources: $6000/year for educational materials and workshops
source: City, lake associations, Fields Pond Foundation, Davis Foundation, workshop participants
timeline: 2022 and ongoing

Recommendation W-19: Work toward the goal of having 10% of Ellsworth's lakefront properties LakeSmart-certified by 2024, and celebrate those property owners as models for others.

who: lake associations, MLS
necessary resources: volunteers
source: lake associations and other volunteers
timeline: 2021-2025

Recommendation W-20: Return staffing in the city's Code Enforcement Department to the equivalent of pre-2008 levels (three full-time positions).

who: City
necessary resources: staff salary or contract as much as $50,000
source: pro-rated increase of permitting fees and tax revenue from shorefront property
timeline: 2022

Recommendation W-21: Periodically convene a network of representatives from municipalities and lake and road associations within the Union River watershed to explore common issues and exchange best management practices, particularly with respect to reducing NPSP through improved road construction practices, shared equipment, and expertise.

who: HCPC, HCSWCD, GEW, lake and road associastions, MLS, City
necessary resources: minimal hospitality costs, featured speaker from state agency or other organizatoin
source: lake associations and hosting community
timeline: 2022 and ongoing

Recommendation W-22: Require whoever owns the Green Lake, Graham Lake, and Ellsworth dams to limit the annual variation in lake water elevation to no more than 4 vertical feet and adhere to practices that will enable Green, Graham, and Leonard Lakes to comply with Maine water quality standards and achieve improved environmental and recreational benefits.

who: DSF, Black Bear Hydro Partners (Brookfield), Green Lake Water Power Company, Federal Energy Regulatory Commission, DEP and Maine State Legislature, City, Friends of Graham Lake (FoGL), Green Lake Association, Georges River Trout Unlimited
necessary resources: volunteer monitoring
source: DEP and other responsible parties
timeline: 2021 and ongoing

Recommendation W-23: Request that the DEP establish clear, numerical standards for turbidity, and raise expectations for water quality when issuing water quality certificates for the renewal of dams.

who: FoGL, DEP, Maine Legislature. DSF,
necessary resources: none
source: not relevant
timeline: 2020 (in progress) until standards are in place

Recommendation W-24: Undertake independent, periodic water quality checks of all impoundments created by dams on the Union River, to monitor and enforce water quality standards.

who: Black Bear Hydro or other dam owner, City, DSF, FoGL, DEP
necessary resources: ideally profrssional water quality testng but failing that possibly volunteer citizen scientists and equipment otherwise addressed in these recommendations
source: dam owner and City
timeline: 2021-2031

Recommendation W-25: Advocate for the construction of safe and effective up- and downstream fish passage on all Union River dams within three to five years of federal relicensing, with immediate loss of certification if the fishways are not fully operational at the end of five years.

who: DSF, DEP, DMR, National Oceanic and Atmospheric Administration, Maine Legislature, Atlantic Salmon Federation, Downeast Conservation Network, FBC, Georges River Trout Unlimited, Maine Center for Coastal Fisheries, the Maine Council of the Atlantic Salmon Federation, Maine Elver Fishermen Association, Maine Rivers, FoGL, Trout Unlimited, Union River Sporting Club and Union Salmon Association
necessary resources: possibly some legal fees, but otherwise none
source: not relevant
timeline: 2020 (in progress) and until volitional fish passage is achieved at all Union River dams

D. A Revitalized Union River Waterfront and Watershed

Recommendation W-26: Update and revise the 2002 Waterfront Master Plan, prioritizing public access to the length of the waterfront and restoration of shorefront habitat and green

infrastructure, to minimize the effects of stormwater runoff and help mitigate the effects of erosion and sea level rise.

who: City, FBC, DSF, HoE, Ellsworth Area Chamber of Commerce (CC), GEW
necessary resources: $20,000 in the context of revising the Comprehensive Plan
source: DMR, Maine Coastal Program--Shore and Harbor Planning Grant Program
timeline: 2021-2023

Recommendation W-27: Preliminary to undertaking a vulnerability assessment, invite the Island Institute to organize a public forum or workshop on the eventual effects of sea level rise in Ellsworth and on potential approaches to mitigating the combined effects of sea level rise and stormwater through waterfront revitalization and other mechanisms.

who: GEW, Island Institute, City, Maine Coast Heritage Trust, Maine Geological Survey
necessary resources: fees for facilitators and speakers
source: Island Institute (grant in hand)
timeline: 2021

Recommendation W-28: Begin phased implementation of the revised Waterfront Master Plan, starting with rezoning the downtown waterfront to eliminate heavy industrial use.

who: City, GEW, GEL, FBC, HoE, DSF, CC, Ellsworth Historical Society (EHS), Black Bear Hydro
necessary resources: several million dollars and thousands of hours of volunteer time and expertise
source: DOT, Small Harbors Improvement Program; FEMA; DMR, Shore Access Grant; Sea Level Rise Technical Assistance Fund; National Parks Service Maritime Heritage Program; Community Development Block Grants, City, Project Canopy, Land and Water Conservation Fund, Black Bear Hydro, Land for Maine Futures, Quimby Foundation, Davis Foundation, MCF and many other environmentally oriented foundations and trusts
timeline: rezoning, applications to fund Project Manager 2022-2023; hiring of Project Manager, grant applications 2024; implementation through and beyond 2031

Recommendation W-29: Coordinate current efforts to create public access to the river and a river walk/urban hike from Harbor Park to the Union River bridge and from there behind the library to Central Street.

who: GEW, GEL, FBC, EGC, HoE, City, DSF, Black Bear Hydro, City, local businesses, Rotary, Boy Scouts and other non-profits
necessary resources: refurbishing Riverwalk behind Library $40,000 in materials and contracted professional trail builders; new walk from Harbor Park to bridge $200,000
source: MCF; New England Grassroots Fund (both in hand); Black Bear Hydro; Bureau of Parks and Lands, Recreational Trails Program; DMR, Right of Way Re-discovery Program and Coastal Communities Grant Program; local businesses and other responsible parties
timeline: 2020 (in progress) and ongoing until walkway/hike is completed

Recommendation W-30: Support the Museum in the Streets project so that it will profile the history of the Union River and engage the public in understanding its importance in the context of other historic sites in the city.

who: City, EHS, local businesses and friends
necessary resources: $20,000
source: MCF, local donors, City
timeline: 2020 (in progress)-2022

Recommendation W-31: Organize a community rebranding effort to reposition the Union River as central to the public identity and profile of the city.

who: HoE, CC, DSF, EHS, City, local businesses
necessary resources: $15,000 for rebranding; $5000-$10,000 for first river festival

source: MCF, City, local businesses
timeline: 2022 and festival ongoing

Recommendation W-32: Seek official designation of the downtown riverfront as an historic district (from Indian Point to the Ellsworth dam), to further acknowledge and promote the importance of the river and the waterfront in Ellsworth's evolution as a city.

who: City, EHS, HoE
necessary resources: none beyond volunteer time
source: responsible parties
timeline: 2022

Recommendation W-33: Seek official designation of the Union River as an historic corridor that has had major environmental, social, cultural, and economic significance in eastern Maine, from the times of indigenous peoples through that of early settlers to the present day.

who: HCPC, DSF, Hancock County Trustees of Public Preservation, Maine State Historic Preservation Office, EHS, City, Atlantic Salmon Federation, Downeast Conservation Network, FBC, Georges River Trout Unlimited, Maine Center for Coastal Fisheries, the Maine Council of the Atlantic Salmon Federation, Maine Rivers, FoGL, Trout Unlimited, Union River Sporting Club and Union Salmon Association
necessary resources: $4000 for preparation of supporting documents
source: responsible parties
timeline: 2022

Recommendation W-34: Survey the stormwater system and erosion caused by uncontrolled stormwater runoff below the Leonard Lake dam, make it a priority to correct runoff problems within the city's control (including snow dumps at the water's edge), and require other offending property owners to amend deficiencies within a reasonable period of time.

who: City, HCSWCD, DEP
necessary resources: $12,000 for survey; correction costs dependent on survey results
source: City, DEP, EPA Urban Waters/Stormwater Program
timeline: 2025

Recommendation W-35: Clean up toxic chemical sites along the river both above and below the Ellsworth dam.

who: City, HCSWCD, DEP, Army Corp of Engineers
necessary resources: $50,000+ for hazardous substances and petroleum site assessments; Clean-up costs to be determined by site assessments but potentially $400,000 or more
source: EPA/Maine Brownfields Assessment and Clean-up grants; Army Corp of Engineers
timeline: 2025

Recommendation W-36: Once the turbidity, runoff, and stormwater issues along the downtown waterfront have been addressed, dredge the river channel to reduce sediment buildup.

who: City, Army Corps of Engineers
necessary resources: $80,000 and up dependent on the condition of the river by the time dredging is done
source: Army Corps of Engineers, Maine Coastal Program
timeline: 2030

Recommendation W-37: Undertake a Union River watershed survey (including attention to dams and other crossings or barriers), supported by trained and supervised volunteer citizen scientists, and regularly update this survey every ten years.

who: DSF; HCPC; DEP; HCSWCD; lake associations; citizen scientist volunteers Maine Audubon StreamSmart Program

necessary resources: $50,000 not including eliminating barriers
source: DEP; US Fish and Wildlife Service,Coastal Program, Fish Passage Program; DEP/EPA (Nonpoint Source Water Pollution Control Grants "319")
timeline: 2026-2027

Recommendation W-38: Drawing on a range of data in addition to the watershed survey, create a Union River watershed management plan that identifies overall goals and objectives for the watershed, areas currently requiring improvement, responsible parties for correcting any problems, and potential funding sources for private and public improvements.
who: DSF, HCSWCD, HCPC
necessary resources: $20,000
source: DEP; New England Forests and Rivers Fund; DEP/ EPA Nonpoint Source Water Pollution Control Grants "319"
timeline: 2027-2028

Recommendation W-39: Request that all dams within the Union River watershed receive a state inspection, with any necessary repairs brought to the owner's attention.
who: GEW; HCPC; MEMA, Dam Safety Program; FERC
necessary resources: nonr
source: not relevant
timeline: 2021

Recommendation W-40: Post any publicly available data relating to Union River watershed dams on the Green Ellsworth website.
who: GEW
necessary resources: volunteer time
source: not relevant
timeline: 2021 and ongoing

Recommendation W-41: Change current state legislation to make both the dates and the results of dam inspections publicly and regularly available.
who: GEW, State Legislature, MEMA, Federal Energy Regulatory Commission
necessary resources: none
source: not relevant
timeline: 2022

E. Upgraded Natural and Built Stormwater Infrastructure

Recommendation W-42: Formally conserve Card Brook and its wetlands, including a public-access corridor along the brook from the High Street crossing to the river and the wooded area behind Maine Coast Mall between Birdsacre and the brook.
who: FBC, City, GEW, DSF, HCSWCD, HCPC, Towns of Hancock and Lamoine
necessary resources: undertermined, depending on negotiations with property owners
source: Land for Maine's Future; Land and Water Conservation Fund; Maine Outdoor Heritage Fund; US Fish &Wildlife Service, Gulf of Maine Coastal Program; Jane's Trust; Davis Conservation Foundation; Doris Duke Charitable Foundation; The Nature Conservancy, Maine Natural Resource Conservation Program; North American Wetlands Conservation Act Small Grants (USFWS); Maine Bureau of Parks and Lands, Recreational Trails Program; Sweetwater Trust Land Protection Program; Open Space Institute; John Sage Foundation; Fields Pond Foundation; Wildlife Action Opportunities Fund; Five Star and Urban Water Restoration Grant Program; LL Bean Maine Land Trust Grant Program
timeline: beginning 2022 and ongoing

Recommendation W-43: Undertake a Card Brook watershed survey and develop a restoration and management plan to determine the cause of the brook's nonconforming status, measures for rectifying the situation, and a proposal for implementing those measures as well as ongoing maintenance to avoid further impairment.

who: City, FBC, DSF, HCSWCD, GEW
necessary resources: $35,000
source: DEP/ EPA (Nonpoint Source Water Pollution Control Grants "319"), City
timeline: 2021-2022

Recommendation W-44: Implement a Card Brook restoration and watershed management plan, drawing on, among other things, volunteer cleanups, educational materials, and regulations and enforcement.

who: City, FBC, DSF, HCSWCD, GEW
necessary resources: to be determined by watershed survey and plan but probably $100,000+
source: DEP/EPA Envirogrant ($70,000 in hand), Nonpoint Source Water Pollution Control Grants "319"
timeline: 2023-2025

Recommendation W-45: Develop a phased long-term plan for upgrading Ellsworth's stormwater infrastructure, with the overall objective of retaining as much water as possible rather than flushing stormwater, chemicals, and sediment into the river as quickly as possible.

who: City, HCSWCD, EGC, MGV
necessary resources: $25,000
source: DEP/EPA Clean Water State Revolving Loan Fund
timeline: 2024-2025

Recommendation W-46: Implement the plan for upgrading Ellsworth's stormwater infrastructure, including replacing undersized culverts and pipes and using green infrastructure to decrease the pressure on the human-made system.-

who: City, EGC, MGV
necessary resources: to be determined by program planning but several million dollars, possibly partly in conjunction with road improvements and the introduction of green infrastructure through urban forestry and landscaping improvements
source: DEP/EPA Clean Water State Revolving Loan Fund; Stream-Crossing Upgrade Grant Program
timeline: 2020 culvert upgrades already in progress and ongoing, but full plan implementation 2025 and ongoing

Recommendation W-47: Reduce the level of stormwater runoff from existing impervious surfaces and limit future construction of impervious surfaces unless adequate measures are in place to retain and filter runoff.

who: City, GEW
necessary resources: none besides those already cited for other actions
source: not relevant
timeline: 2021 and ongoing

F. Access to the Water

Recommendation W-48: Provide adequate public access to our lakes and ponds and improve signage and maintenance of existing boat launches and other access sites, beginning with improved access to Leonard Lake, especially at the city-owned parcels below the Elementary

Middle School and at the mouth of Branch Lake Stream (former site of the Branch Lake Stream dam, removed in 2019).

who: City, GEW, Ellsworth Rotary Clubs, Boy Scouts
necessary resources: $6000/year over 4 years
source: City of Ellsworth, National Recreation and Park Association, Ellsworth Rotary Clubs
timeline: 2022-2026

Recommendation W-49: Seek funding for the phased implementation of a shorefront bike and pedestrian loop extending from downtown around both sides of Leonard Lake via a footbridge connecting from the Shore Road in Ellsworth Falls to Infant Street.

who: City, FBC, HCPC, HA, GE, Ellsworth Parks Foundation
necessary resources: staff and volunteer time; implementation costs uncertain
source: Maine Bureau of Parks and Lands, Recreational Trails Program; National Park Service, Rivers, Trails, and Conservation Assistance Program; Quimby Foundation; Davis Foundation; Fields Pond Foundation; Jesse P.Cox Charitable Foundation; Fisher Charitable Foundation; LL Bean Maine Land Trust Grant Program
timeline: 2028 and ongoing

G. Enhanced Community Engagement and Capacity

Recommendation W-50: Develop and train a group of volunteer citizen scientists to support watershed surveys every ten years and test and inspect our lakes on a regularly established schedule

who: GEW, HCLA, LSM, HCSWCD, lake associations, DEP
necessary resources: volunteer time, costs for training personnel
source: participant registrations; LSM; MLS, LakeSmart Program; Maine Audubon, StreamSmart Program; Fields Pond Foundation; MCF, Fisher Charitable Foundation
timeline: 2022 and ongoing

Recommendation W-51: Prioritize time and capacity for city staff to apply for and manage grant projects and to form strategic partnerships with nonprofits concerned with implementing water-related Green Plan recommendations, in order to maximize our capacity as a community to realize the sustainability objectives for our water resources.

who: City
necessary resources: staff time
source: City
timeline: 2021 and ongoing

Recommendation W-52: Annually set aside money from shorefront tax revenue and fisheries income to create a fund for providing seed grants to lake associations, nonprofits, and other organizations for conservation and water improvement projects, as well as matching funds for larger projects such as waterfront renewal, sea level rise mitigation, and dam-related issues.

who: City
necessary resources: Cumulative growth in allocation to @ $100,000/year by 2030
source: shorefront tax revenue and fisheries income
timeline: 2022 and ongoing

CHAPTER 2. LAND Recommendations

A. Overarching Considerations

Recommendation L-1: In the context of comprehensive planning, conduct an inclusive, citywide discussion to determine a high-level strategy for balancing development with the preservation and care of green spaces, in order to maintain the character of the city that citizens want to sustain.

who: City of Ellsworth (City), Green Ellsworth Land Action Team (GEL), Hancock County Planning Commission (HCPC)
necessary resources: none beyond City staff and volunteer time
source: responsible parties
timeline: 2021

Recommendation L-2: Develop a public green spaces management and development strategy for the city and its schools.

who: City, GEL, Ellsworth Parks Foundation (EPF), Ellsworth Garden Club (EGC), Frenchman Bay Conservancy (FBC)
necessary resources: none beyond City staff and volunteer time
source: responsible parties
timeline: 2023-24

Recommendation L-3: Improve public awareness and use of Ellsworth's public green spaces through a phased approach, including review and revision of Chapter 29 (Regulation of City-Owned Land) of the Ellsworth City Ordinances & Codes; signage at all city-owned green spaces, stating terms of use; online maps and guides for these spaces; and promotional signage for the spaces on all access routes in and out of the city.

who: City, GEL, EPF, EGC, FBC
necessary resources: $6000/yr plus City staff and volunteer time
source: responsible parties
timeline: 2022-2024 in a phased approach

Recommendation L-4: Hire a full-time city director of parks and recreation, with credentials in landscape and tree management or a closely related field, and one part-time or seasonal assistant.

who: City
necessary resources: $60,000 for Director, $30,000 for part time staff, with operating budget sufficient to improve the stardard of green spaces management and attract external grant funding beyond current funds in Public Works budget for contracts and the engagement of volunteer support and expertise
source: City and over time, assistance from EPF, EGC and Master Gardener Volunteers (MGV)
timeline: 2023

Recommendation L-5: Establish a 501(c)(3) organization (referenced for convenience as the Ellsworth Parks Foundation, or EPF) to support the care, acquisition, and long-range planning of city parks and conserved areas by the city and local nonprofits.

who: GEL, EGC
necessary resources: small legal fees (possibly pro bono) and incorporation fees at start up; focused on raising money through grants and other fundraising to support Ellsworth green spaces
source: responsible parties
timeline: 2022

Recommendation L-6: Use Ellsworth's green spaces as educational sites for learning and exploration that will facilitate the public's capacity to embrace and act on our Green Plan objectives.

who: GEL, City, EGC, MGV, Maine Master Naturalist Program (MMNP), Woodlawn, Stanwood Wildlife Sanctuary (SWS), FBC, Blue Hill Heritage Trust (BHHT), Hancock County Soil and Water Conservation District (HCSWCD)
necessary resources: funded on a project by project basis and dependent on the nature of the project
source: responsible parties
timeline: 2021-2031

A. Natural Green Infrastructure

Recommendation L-7: Designate a Natural Resource Zone for areas "critical" for "natural preservation" (pp. II.58–59), especially around lakes and waterways not already protected, with attention to "the wishes of residents for a high quality environment" (p. II.16).

who: City, GEL, FBC
necessary resources: none
source: not relevant
timeline: 2024

Recommendation L-8: Designate a Rural Forestry environmental protection zone (p. II.59) for large parcels of forested land surrounding Green Lake, to preserve the water quality in Green Lake and the Union River watershed.

who: City, GEL, FBC, Green Lake Association
necessary resources: none
source: not relevant
timeline: 2024

Recommendation L-9: Implement an open space acquisition fee to be paid for homes built on subdivision lots in rural areas that do not use the cluster option.

who: City, GEL
necessary resources: none, intended to raise money to support conservation efforts
source: not relevant
timeline: 2024

Recommendation L-10: Discourage further expansion of strip development (including commercial light industrial development) by reviewing natural and open areas currently remaining within the Commercial Light Industrial, Rural Growth, and Rural Residential (along the Surry Road) Zones and protecting them from residential and commercial light industrial development through zoning and Unified Development Ordinance (UDO) revisions.

who: City, GEL
necessary resources: none
source: not relevant
timeline: 2024

Recommendation L-11: Educate residents and city and nonprofit staff to protect the biodiversity of our natural areas by providing lists of invasive and recommended native species, free inspections to identify invasives, assistance with the control of invasives, and programming aimed at reducing mowed lawn areas and increasing the planting of native species.

who: EGC. GEL, HCSWCD

necessary resources: $3000 for educational materials and programming; severa thousand dollars to address specific large-scale infestation of invasive terrestrial plants, including wetland areas
source: responsible parties and USDA/Natural Resource Conservation Service programs such as ACEP-Wetland Reserve Easements and Conservation Technical Assistance programs
timeline: 2021-2031

Recommendation L-12: Using citizen scientists and postsecondary and nonprofit partners, augment existing inventories and maps of Ellsworth's vulnerable and sensitive plant and animal species and habitats, historic trees, and vernal pools, as well as seasonal urban wildlife habitats and travel patterns.

who: GEL, MMNP, Ellsworth High School students, College of the Atlantic (COA), University of Maine at Orono (UMO), Maine Natural Areas Program, FBC, BHHT
necessary resources: researcher/volunteer time for training and fieldworkwith some paid research assistants (up to $20,000/year) but otherwise no other resource implications
source: responsible parties, John Sage Foundation, Jane's Trust, Wildlife Action Opportunity Fund, Davis Conservation Fund, Morton-Kelley Charitable Trust
timeline: 2021-2026

C. Conserved Land

Recommendation L-13: Conserve and protect from future subdivision and development at least 50% of Ellsworth's total land area by 2030, including protection of farmland and working forests through working landscape conservation easements.

who: GEL, City, FBC, BHHT, SWS, Maine Farmland Trust (MFT), HCPC, private individuals and businesses
necessary resources: many thousands of dollars depending on the type of conservation mehanism and/or the asking price for land
source: Land for Maine's Future (LMF); Bureau of Parks and Lands, Land and Water Conservation Fund; MCF Maine Land Protection Grant; National Fish And Wildlife Foundation; Open Space Institute(OSI), Saving New England's Wildlife Project Grant; New England Forests and Rivers Fund; Community Forest Program, US Forestry Service; Forest Society of Maine (FSM); New England Forestry Foundation (NEFF); EPF
timeline: 2021-2031

Recommendation L-14: Conserve sensitive wetlands, most of which would be too costly to develop, to prevent road building and habitat fragmentation, and to reduce future costly stormwater infrastructure construction.

who: FBC, BHHT, City, HCPC, private individuals and businesses
necessary resources: many thousands of dollars depending on the type of conservation mechanism and/or the price of land
source: National Wetlands Conservation Act Grants; OSI, Saving New England's Wildlife Project Grant; Maine Natural Resource Conservation Program (The Nature Conservancy); Land and Water Conservation Fund; Jane's Trust; Sweetwater Trust Land Protection Program; John Sage Foundation; Fields Pond Foundation; Wildlife Action Opportunities Fund; Davis Conservation Foundation, Five Star and Urban Water Restoration Grant Program; LL Bean Maine Land Trust Grant Program
timeline: 2021-2031

Recommendation L-15: Establish a land conservation fund, in part funded by the open space acquisition fee (see Recommendation L-9), in order to leverage external funding and to support partner organization efforts to conserve natural and working green spaces.

who: City
necessary resources: none

source: not relevant
timeline: 2024

Recommendation L-16: Leave large blocks of undeveloped land intact to protect deer wintering areas and other ecologically rich habitats.

who: City, FBC, private individuals and businesses
necessary resources: none
source: not relevant
timeline: 2021-2031

Recommendation L-17: In the context of planning and managing development, provide for connections between natural areas.

who: City, developers
necessary resources: none
source: not relevant
timeline: 2021-2031

Recommendation L-18: Make protected land accessible to the public to the greatest extent possible.

who: FBC, BHHT, SWF, Woodlawn, City
necessary resources: project and operating funds for the creation and maintenance of trails, signage and other facilities
source: responsible parties
timeline: 2021-2031

Recommendation L-19: Organize a proactive program for contacting property owners with 10 or more acres of natural or working lands that have not been permanently conserved, with the objective of planning for the conservation of large tracts of wildlife habitat and connecting corridors.

who: FBC, MFT, GEL, GEF
necessary resources: staff and volunteer time only
source: responsible parties
timeline: 2021-2031

Recommendation L-20: Create a special classification for all conserved natural areas that requires vegetative buffers and more stringent stormwater management on new abutting property developments.

who: City
necessary resources: none
source: not relevnt
timeline: 2024

D. Trees

Recommendation L-21: Develop a rural forestry plan that includes the promotion of low-impact forestry, the introduction of model low-impact forestry management at Branch Lake Public Forest, annual monitoring of timber harvests, and a review of current zoning and ordinances to ensure adequate protection of working woodlands as well as unmanaged forested natural areas and the habitats associated with them.

who: City, GEL, FBC
necessary resources: staff and volunteer time, $6000 for Branch Lake Public Forest plan

source: MCF and responsible parties
timeline: 2023

Recommendation L-22: Revive the city's nine-person Arbor Commission under the terms of the current Tree Ordinance (Chapter 43), and include certified arborists and licensed foresters qualified to develop and oversee substantial urban and rural forestry programs across the city.

who: City
necessary resources: none
source: not relevant
timeline: 2021

Recommendation L-23: In order to inform an urban forestry program with canopy coverage goals and areas of focus, undertake a canopy coverage assessment and expand the street tree inventory to include all side streets and areas outside the downtown core.

who: GEL, City
necessary resources: volunteer time and $15,000 for a canopy coverage assessment
source: Project Canopy, Maine Community Foundation, City
timeline: 2021-2023

Recommendation L-24: Develop and implement an urban forestry program that includes a regular schedule for improved maintenance of trees in all of Ellsworth's existing green spaces; a street tree planting program, beginning with the failed plantings along High and Myrick Streets; and a plan to protect mature trees, regularly introduce new tree plantings in Ellsworth's growth areas, and remove invasive species.

who: City, GEL, EPF, EGC, Rotary, Ellsworth property owners
necessary resources: initially $6000-$10,000/year in City targetted street tree maintenance and contributions towards plantings; $5000-$10,000/year in tree plantings (@ $1000/tree for tree, planting and two years mainenance) ; longer term goal $2/year /per resident or @ $!6,000/year, a minimal requirement for Ellsworth to be recognized as a Tree City USA.
source: Responsible parties, Project Canopy, Maine Community Foundation, individual donors and business/organizational sponsorships
timeline: 2021-2031

Recommendation L-25: In order to strengthen the urban tree planting program and reduce its cost, initiate a city tree farm on the Jordan Homestead property owned by Frenchman Bay Conservancy.

who: GEL, FBC, EGC, MGV, Rotary
necessary resources: mostly volunteer time but a modest number of bare-root small trees at $500-$1000 for iniitial plantings to be grown until they are a size suitable for planting
source: responsible parties
timeline: 2022

E. Public Landscaping and Recreational Spaces

Recommendation L-26: Annually invite nonprofit organizations maintaining public green spaces to make requests to the city for modest budget allocations, dependent on specific projects, financial need, and annual reports of work accomplished.

who: City
necessary resources: will vary depending on the cost of specific one-time or ongoing projects

source: City but rather than a simple expenditure these funds should be seen as a mechanism for the City to multiply its existing funds and investing in the volunteer capacity of the community to address many recommendations in this chapter
timeline: 2021-2031

Recommendation L-27: Revise the Cemetery Ordinance to lay out protocols for best management practices of historic cemeteries in the city, including the mapping and care of gravestones, weed whacking, lawn mowing (push and riding mowers), and alternative groundcovers. Particular attention is required for the Old Burial Ground.

who: City in consultation with EPF, cemetery associations and Historic Preservation Commission
necessary resources: volunteer time
source: not relevant
timeline: 2022

Recommendation L-28: As provided for by the Cemetery Ordinance, appoint a cemetery board responsible for developing and overseeing a best practices management plan for historic cemeteries, and for reviewing investment and distribution of interest from the Cemeteries Trust Funds.

who: City
necessary resources: volunteer time only
source: not relevant
timeline: 2022

Recommendation L-29: Refurbish the Leonard Lake outdoor classroom facility at Lejok Street, including providing adequate signage and a stream crossing to facilitate access to different parts of the property without returning to the street.

who: City, Ellsworth Elementary School teachers and students, Rotary, other individual and organizational contributors/volunteers
necessary resources: volunteer time; $10,000 for building materials, as much as $10,000 for bridge
source: responsible parties and in-kind donations of material and labor from individuas, businesses and organizations
timeline: 2022-2023

Recommendation L-30: Hire an outdoor classroom coordinator to provide continuity for gardening and other outdoor classroom activities throughout the year across all three Ellsworth schools, and facilitate the engagement of teaching staff and students in curricular and extracurricular activities relating to the schools' outdoor campuses.

who: Ellsworth School Department, City, Healthy Acadia, EPF
necessary resources: phased incremental increase in stipends to full garden coordinator starting at $15,000 and increasing to $30,000-$40,000/year for full-time employee
source: responsible parties (City already provides $10,000 in stipends); Food Corps programs; Whole Kids Foundation, Garden Grants; New England Grass Roots Grow Grant; MCF; Maine Agriculture in the Classroom; Captain Planet Foundation; Tom's of Maine; LL Bean Foundation; Subaru Healthy Sprouts Award, USDA Farm to School Programs
timeline: 2023-2031

Recommendation L-31: Work with School Department maintenance staff to clarify the role of the outdoor school campuses in supporting curricular and extracurricular education and the overall role of school campuses in the city's green infrastructure.

who: Ellsworth School Department, MMNP, MGV, EGC, FBC

necessary resources: staff and volunteer time only; potentially reduced resources needed for school maintenance
source: responsible parties
timeline: 2022

Recommendation L-32: Upgrade landscaping at Harbor Park as a first step toward creating a more extended waterfront park with a river walk and landscaping along the river.

who: City, MGV, EGC
necessary resources: primarily volunteer labor, $5000-$10,000/year in plants and materials
source: responsible parties; local fundraising; Recreational Trails Program; National Park's Service, Rivers, Trails and Conservation Assistance Program
timeline: 2022-2025

Recommendation L-33: Upgrade landscaping along High Street to include lower-care and more sustainable, attractive, and functional plantings. Ideally these should be bioswale plantings designed to absorb and filter stormwater runoff from paved surfaces.

who: City, Maine Department of Transportation, GEL, EGC, MGV
necessary resources: several hundred thousand dollars for redesigning High Street to simultaneously address issues and recommendations cited elsewhere in this plan (improved traffic management and walkability, impairment of Card Brook, street tree plantings)
source: City, Maine Department of Transporttion/US Department of Transportation, Canopy Project, Congestion Mitigation and Air-Quality Improvement Program, and Transportation Enhancement Fund; Community Development Block Grant; individual and business donors
timeline: 2025-2027

Recommendation L-34: Enhance the range and distribution of park facilities, including more High Street and rural neighborhood parks, a dog park, and a downtown green space on Franklin Street in front of City Hall.

who: City, EPF, GEL, EGC, MGV, FBC
necessary resources: necessary financial resources will vary according to the size and type of green space; volunteer and staff time
source: City (including tax acquired property); other responsible parties; local fundraising; MCF; National Garden Clubs, Plant America Program
timeline: 2021 through 2031 depending on the availability of properties, demand/need for a particular park and feasiblility of maintenance plan

Recommendation L-35: Commission an accessibility inventory and action plan for Ellsworth's green spaces, with attention to the level of ADA access and related improvements.

who: City, EPF, EGC, FBC, SWF, Woodlawn, BHHT, Friends in Action, YMCA
necessary resources: $8000 for inventory; undetermined amount for interventions
source: National Garden Bureau, Maine Community Foundation, Recreation Trails Program, Transportation Enhancement Fund
timeline: 2026

F. Trails and Corridors

Recommendation L-36: Update the 2007 Bicycle-Pedestrian Plan to include a system of green and walkable corridors linking green spaces on both sides of the river.

who: City, GEI, GEL, EPF, HCPC, FBC
necessary resources: staff and volunteer time but otherwise $5000 for updated plan
source: MDOT Bicycle and Pedestrian Program, MCF, responsible parties
timeline: 2022

Recommendation L-37: Upgrade the Sterling Street to Forest Avenue corridor as a potential link with the River Walk and an incremental step toward creating the Leonard Lake bike and pedestrian loop.

who: GEI, GEL, City, Rotary, Boy Scouts, Elementary Middle School and High school student volunteers, neighborhood volunteers
necessary resources: staff and volunteer time; $4000 in signage and trail building materials
source: responsible parties; MDOT bicycle and Pedestrian Program; Maine Bicycle Coalition, Community Grants; Recreational Trails Program; In-kind donaions/price reducions
timeline: 2024

G. Land-Use Management and Municipal Leadership

Recommendation L-38: Undertake a comprehensive revision of the UDO and other city codes, regulations, and zoning and enforcement mechanisms.

who: City, GEL
necessary resources: none
source: not relevant
timeline: 2023-2024

Recommendation L-39: Initiate a housing study for the city that involves community consultations and includes a regional housing inventory, as well as updated data regarding local housing market trends; vacancy rates; projected growth and demands for specific types of housing; the impacts of current and potential public transit on housing needs; and the affordability, age, and location of housing stock.

who: City, GEL
necessary resources: $10,000 in conjunction expenditures towards revised comprehensive plan
source: City
timeline: 2021-2022

Recommendation L-40: Develop a proactive approach to preserving Ellsworth's historic housing stock that incorporates an inventory of the city's historic buildings as well as programs, incentives, and regulations to facilitate long-term maintenance of the buildings as well as their desirability and affordability for owners.

who: City, GEL
necessary resources: $6,000 for historic building inventory
source: Maine Historic Preservation Commission; Davis Foundation; MCF, Belvedere Fund
timeline: 2022

H. Private Stewardship

Recommendation L-41: Develop educational materials and programming to cultivate good stewardship of the land by Ellsworth businesses, nonprofits, and residents.

who: FBC, EGC, GEL
necessary resources: minimal funds hosting speakers; volunteer and staff time creating and posting online information and resources
source: responsible parties
timeline: 2022

Recommendation L-42: Create mechanisms for recognition and other incentives for exceptional stewardship.

who: GEL
necessary resources: volunteer time for nominating deserving people, organizing rcognition events, award sponsors, etc
source: GEL and local sponsors
timeline: 2022-2031

I. **Community Access and Engagement**

Recommendation L-43: Revise the terms of the Recreation Commission to include a focus on parks and green spaces as well as recreation, with the revised title of the Parks and Recreation Commission, or retain the Recreation Commission as is and create a Parks and Conservation Commission, as provided for by Maine statute.

who: City
necessary resources: none
source: not relevant
timeline: 2022

Recommendation L-44: Engage nonprofit organizations and volunteer groups more strategically to assist with supervising and maintaining the city's green spaces.

who: City, EPF, GEL, FBC, EGC, MGV, MMNP, Rotary, Boy/Girl Scouts
necessary resources: will increase rather than drain city resources
source: responsible parties
timeline: 2021-2031

CHAPTER 3. FOOD AND FARMING Recommendations

A. Overarching Considerations

Recommendation F-1**:** Create a 501(c)(3) leadership organization, referenced within this plan as the Downeast Food Hub (DFH), to further the recommendations in this chapter.

who: Green Ellsworth Food and Farming Team (GEF)
necessary resources: sponsorship/grant funding, lawyer (unsure of cost), volunteer board members/officers
source: GEF, local organizational sponsorship, grants
timeline: 2021-2032

B. Our Farms and Farmland

Recommendation F-2: Inventory area farmers, other food producers, and business owners to create a baseline picture of food production and needs.

who: GEF/DFH, HA, Hancock County Food Security Network (HCFSN), UMO, University of Mane Cooperative Extension (UMCE), Ellsworth Farmer's Market (EFM), Ellsworth Business Development Corporation (EBDC), Eastern Maine Development Corporation (EMDC), USDA, USDA Farm Service Agency (FSA)
necessary resources: ~$100,000
source: GEF/DFH/volunteer time, staff time, grant funding. Initial funder to consider is USDA. No cost to the city.
timeline: 2023-2025

Recommendation F-3: Direct and restrict development in the Drinking Water and Rural Zones in such a way as to take into account farmland protections.

who: City, GEF/DFH
necessary resources: staff time
source: city zoning efforts and tax assessment office
timeline: 2022-2032

C. Conservation of Farmland

Recommendation F-4: Collect data to assess how much of the Ellsworth area's existing prime farmland soils are protected under any easements, in order to build a baseline of protected prime farmland soils.

who: GEF, MFT, FBC, BHHT, CNHT, MCHT, FSM, TCF, TTFPL
necessary resources: volunteer/staff time
source: responsible parties
timeline: 2021-2022

Recommendation F-5: Coordinate efforts to protect farmland through a collaboration of individuals, conservation-focused nonprofits, the city's Planning Department, and the Planning Board.

who: DFH, City, MFT, FBC, other area conservation organizations, if applicable
necessary resources: volunteer/staff time
source: responsible parties
timeline: 2022-2031

Recommendation F-6: Connect farmers looking for land with farmers looking to sell their land, and farmers looking to sell their land with local conservation organizations.

who: DFH, MFT, FBC, other area conservation organizations, if applicable
necessary resources: volunteer/staff time
source: responsible parties
timeline: 2022- 2032

D. Municipal Support for Farmers and Farming

Recommendation F-7: Appoint a sustainability director for the city, to address the need to move the city forward in its sustainability goals.

who: City
necessary resources: possibly initially a role assigned to an existing staff member such as the City Planner or an Assistant City Manager; ultimately a full-time staff member with a responsibility for grant applications and project management related to major sustainaibility initiatives; $60,000 for the latter full-time position
source: City and grant funding for project management overhead costs
timeline: 2022

Recommendation F-8: Plan a presentation for city councilors and the Planning Board that provides the recommendations in this chapter in a condensed format.

who: GEF/DFH
necessary resources: volunteer time and printed/online materials, cost is negligible
source: GEF/DFH
timeline: 2021

Recommendation F-9: Identify opportunities to develop additional community gardens.

who: HA, UMCE, DFH
necessary resources: none-identifying opportunities vs developing gardens. Development needs grant funding, recruitment of donated time and materials, organizational staff time, but this part of the existing mission of HA/SNAP-Ed funding and UMCE/MGV
source: responsible parties
timeline: 2021-2032

Recommendation F-10: Provide coordination between the city, local farmers, and the farmers' market to strengthen the market's role in the city's economic and cultural fabric.

who: DFH, City, EFM, HoE
necessary resources: will increase city resources
source: responsible parties
timeline: 2022-2032

Recommendation F-11: Research factors contributing to the successes and failures of farmers' markets in the Ellsworth area and elsewhere in Maine, with the objective of determining ways to strengthen Ellsworth's farmers' market and others in the region.

who: DFH, EFM, Maine Federation of Farmer's Markets (MFFM), Maine Organic Farmers and Gardeners Assocation (MOFGA), HA, Healthy Peninsula (HP), UMCE, Maine Farmland Trust (MFT), Maine Department of Agriculture, Conservation, and Forestry (MDACF), HoE
necessary resources: will increase city resources
source: DFH and organizational staff time
timeline: 2022- 2022

Recommendation F-12: Secure a permanent location for a year-round farmers' market in Ellsworth.

who: HoE, GEF/DFH, City
necessary resources: staff and volunteer time for coordination efforts; and city budgeting/approval process. Approximately $4000 toward promotional costs for HoE.
source: responsible parties
timeline: 2022-2023

Recommendation F-13: Explore and facilitate the possibility of an Edible Main Street project.

who: DFH, EGC, HA, City
necessary resources: staff and volunteer time for coordination and maintenance efforts and for acquisition of grant funding; and city approval process for city sidewalk project; no cost to the city is anticipated. Materials will require donations, may require grant funding.
source: responsible parties
timeline: 2023

Recommendation F-14: Use the results of Maine Farmland Trust's Farm-Friendly Test to help identify how to develop and improve municipal support, through zoning and development restrictions, for farmland protections and economic encouragement for farming during the next comprehensive plan update.

who: GEF, MFT, City
necessary resources: none
source: not relevant
timeline: 2021-2023

Recommendation F-15: Advocate for adding agriculture to the next comprehensive plan update as a separate, detailed section with specific, measurable actions.

who: GEF/DFH, City
necessary resources: volunteer/staff time
source: responsible parties
timeline: 2021-2023

Recommendation F-16: Identify and recruit one or two people from the Ellsworth Farmers' Market to serve as the primary contact(s) between that organization and the city.

who: DFH, EFM
necessary resources: volunteer time for recruitment and attendence
source: responsible parties
timeline: 2022

Recommendation F-17: Recruit farming and farmer advocates to serve on the Planning Board, Comprehensive Plan Committee, and if possible, Ellsworth Business Development Corporation.

who: DFH, HoE
necessary resources: volunteer time for recruitment and attendence
source: responsible parties
timeline: 2021-2023

Recommendation F-18: Expand the sale of locally grown foods to area restaurants by incorporating this goal into other city economic development strategies.

who: City, EBDC, GEF/DFH
necessary resources: will increase city resources
source: responsible parties
timeline: 2021-2023

Recommendation F-19: Make the practice of promoting the Farmland and Open Space taxation programs to all farmers and landowners a municipal policy, in order to ensure consistency through personnel changes and changes in administrative focus.

who: City, DFH
necessary resources: volunteer and city staff time for city policy approval process
source: responsible parties
timeline: 2022-2024

Recommendation F-20: Promote and help expand the use of the city's municipal composting facility, including the use of the compost it produces.

who: EGAT, DFH, City
necessary resources: will increase city resources; will require cost of promotional materials (online?), but this is anticipated to be negligible
source: volunteer time from GE teams
timeline: 2021-2023

Recommendation F-21: Revisit Ellsworth's ordinances to include more language that supports agricultural interests in general and urban homesteading in particular.

who: DFH, City
necessary resources: volunteer time and city approval process
source: responsible parties
timeline: 2024-2026

E. Combating Climate Change

Recommendation F-22: Promote the results of the NCSI study to area farmers when the results become available.

who: MFT, DFH
necessary resources: promotional costs; likely to be website based and negligible or incorporated into existing costs for website maintenance
source: not relevant
timeline: 2022-2024

F. Addressing Socioeconomic Issues

Recommendation F-23: Conduct a robust analysis of wages, income, and employment patterns in Ellsworth and the surrounding communities, to create a baseline picture of economic strengths and weaknesses.

who: DFH, Hancock County Planning Commission (HCPC), EMDC, Maine Department of Economic and Community Development (DECD), Northeastern Vermont Development Association (NVDA)
necessary resources: The initial study is anticipated to be a compliation of existing data resources, but if an EIA/EIS, Economic Impact Analysis/Study, is required, the cost is anticipated to be ~$50,000
source: DFH/volunteer and staff time; possible grant funding. No cost to the city.
timeline: 2022-2024

Recommendation F-24: Identify opportunities to contribute to more equitable economic conditions through a more equitable local food system.

who: City, HA, UMCE, MOFGA, MFT, MDACF, EFM, MFFM, Maine Farm to Institution (MEFTI), Good Shepherd Food Bank (GSFB), Hancock County Food Security Netowrk (HCFSN), Northern Light Hospitals, MDI Hospital, state and local legislators, Maine Climate Change Institute (CCI), DFH

necessary resources: City zoning and land use changes. Existing organizational efforts, primarily grant funded. Additional larger-scale project funding possible through USDA; also smaller organizations such as MCF and the Fisher Charitable Foundation. Paradigm shift. No direct costs for the city.
source: existing organizational efforts, collaborative efforts and grant funding, DFH/staff time
timeline: 2021-2032

Recommendation F-25: Advocate for integrating farming and agriculture into the curriculum in all area schools, into the programming of local youth groups, and into community gatherings.

who: UMCE, HA, Maine Agriculture in the Classroom (MAC), Edible Island, HP, EGC, MEFTI, MOFGA, MFT, DFH
necessary resources: existing organizational efforts; promotional costs for DFH and DFH time. Material costs likely to be web-based and/or negligible.
source: responsible parties
timeline: 2021-2032

Recommendation F-26: Expand access to education about healthy and local foods.

who: HA, UMCE, MOFGA, MAC, HP, EGC, MEFTI, Edible Island, Magic Food Bus, MFT, EFM, HoE, DFH
necessary resources: existing organizational efforts; promotional costs for DFH and DFH time. Materials costs likely to be web-based and/or negligible.
source: responsible parties
timeline: 2021-2032

Recommendation F-27: Advocate for the expansion of the existing healthy eating programs such as SNAP-Ed benefits and Eat Well at a statewide level, and by supporting smaller Ellsworth-area programs such as the Magic Food Bus with materials, funding, connections, or other resources.

who: DFH state and local legislators, HA, UMCE, HP, Magic Food Bus
necessary resources: coordination and promotional efforts, DFH and staff time. Materials costs likely to be neglligible.
source: responsible parties
timeline: 2023-2032

Recommendation F-28: Assess whether there is an opportunity to help Maine Farmland Trust expand its Farm Fresh Rewards program into Ellsworth-area businesses.

who: DFH, MFT
necessary resources: coordination and promotional efforts, DFH and staff time. Materials costs likely to be neglligible .
source: responsible parties
timeline: 2022

Recommendation F-29: Advocate for stronger city support for the Downeast Cider and Cheese Festival and the Taste of Ellsworth, and explore possibilities for city support of Woodlawn Field Days.

who: HoE, DFH, HA, City
necessary resources: $7000 across all three events for HoE promotional events and staff time. DFH volunteer/staff time; city budgeting/approval process.
source: responsible parties
timeline: 2023-2024

Recommendation F-30: Promote existing farmer education and business opportunity supports, including farmer education on how to help make a CSA successful for the consumer.

who: GEF/DFH, USDA Natural Resources Conservation Service (NRCS), USDA, FSA, MDACF, HSCWCD, MFT, MOFGA, UMCE, MEFTI, Farm to Iinstitution New England, HA, HP, Garden Club Federation of Maine, EGC, Maine Harvest Credit Union, US Small Business Association, EPA, Federal Drug Administration, Maine Directory of State and Local Officials
necessary resources: promotional costs for GEF/DFH, likely to be web-based. Costs negligible or incorporated into web maintenance costs.
source: responsible parties
timeline: 2021-2032

Recommendation F-31: Inventory food purchasing and distribution strategies used by producers and institutions in the Ellsworth area.

who: GEF/DFH, MEFTI
necessary resources: ~$100,000
source: GEF/DFH/volunteer time, staff time, grant funding; initial funder to consider is USDA. No cost to the city.
timeline: 2023-2025

Recommendation F-32: Develop and implement a plan to support a regional food distribution hub.

who: DFH, MEFTI
necessary resources: ~$250,000 planning costs. Implementation/development costs may be in the range of ~$800,000, although this will be determined through the planning process. No direct cost to the city.
source: Grant funded start up; initial place to consider is USDA
timeline: 2025-2030

Recommendation F-33: Promote the benefits of institutional purchasing to appropriate audiences and identify solutions to barriers.

who: DFH, MEFTI, Maine Prevention Services partners, MFT, USDA, UMCE
necessary resources: promotional costs for GEF/DFH, some likely to be web-based. Others in DFH time speaking with targeted audiences. This is part of MEFTI's existing mission; some Maine Prevention Services partners have worked on this in the past as well. Costs for web-based promotion negligible or incorporated into web maintenance costs. Implementation/development: lack of insurance coverage may be a significant barrier; start up grant funding to cover the costs of scaling-up efforts may be identified in future development discussions; MFT, USDA, UMCE will have more information. No direct cost to the city.
source: responsible parties
timeline: 2022-2032

Recommendation F-34: Identify barriers and opportunities to using technological supports to strengthen the connections in our overall food system.

who: GEF/DFH, HA, UMCE, UMO
necessary resources: Discussion-based, no cost.
source: GEF/DFH and organizational staff time.
timeline: 2021-2022

Recommendation F-35: Coordinate the use of technological tools (e.g., Spoiler Alert) to help reduce food waste.

who: DFH, HA, UMCE, UMO
necessary resources: Coordination and recruitment time, no additional costs.
source: DFH and organizational staff time.
timeline: 2022-2032

Recommendation F-36: Create and launch a media campaign to help increase positive perceptions of small farms as part of the local economy.

who: DFH, HA, UMCE, EBDC. EMDC
necessary resources: website, social media and print campaign @$10,000
source: EMDC, MCF, USDA
timeline: 2023- 2025

Recommendation F-37: Work at the regional and state levels to help eliminate regulatory barriers that make it difficult for small farms to compete.

who: DFH, state, local, and national legislators, business owners, farmers
necessary resources: coordination and advocacy time
source: responsible parties
timeline: 2024-2032

Recommendation F-38: Contact local representatives to support the bipartisan PRIME Act.

who: GEF/DFH, local legislators, business owners, farmers
necessary resources: coordination and advocacy time
source: responsible parties
timeline: 2021-2022

Recommendation F-39: Establish a state- or USDA-certified slaughterhouse with a level of accreditation that will adequately serve the commercial needs of Downeast farmers and consumers.

who: DFH, USDA, MDACF, state and local legislators
necessary resources: dependent on whether an existing facility is upgraded or a new one needs to be developed
source: responsible parties
timeline: 2025-2032

Recommendation F-40: Develop and implement a municipal food-waste management ordinance and advocate for a statewide food-waste management law.

who: DFH, City, MDACF, HA, UMCE, state and local legislators, business owners
necessary resources: coordination and advocacy time
source: responsible parties
timeline: 2025-2032

Recommendation F-41: Advocate for enhanced state-level facilitation for food hubs.

who: DFH, MDACF, state and local legislators, business owners, farmers
necessary resources: coordination and advocacy time
source: responsible parties
timeline: 2025-2030

CHAPTER 4. INFRASTRUCTURE Recommendations

Transportation

A. Overarching Considerations: The Need for a Corridor Study

Recommendation I-1: Ellsworth should undertake a comprehensive transportation corridor study as soon as possible.

who: City of Ellsworth (City), Maine Department of Transportation (MDOT), Green Ellsworth Infrastructure Action Team (GEI), and possibly Hancock County Planning Commission (HCPC); work likely done by consultant with city oversight
necessary resources: estimated $80-100,000 for initial study which will require City match of some magnitude; note that actual implementation of study recommendations would require significant funds for street/road improvements over several years
source: MDOT, city
timeline: 2021-22 for study; ongoing for at least 5-10 years for implementation

Recommendation I-2: The city's zoning ordinances and other related codes and ordinances should be reviewed and evaluated with an eye to ensuring that they support efforts to improve our transportation system.

who: City staff w/potential assistance from GEI
necessary resources: City staff time and possible consultant
source: City but done as part of/dependent on new comprehensive plan
timeline: 2021-22

B. Basic Traffic Management Issues

Recommendation I-3: In the context of the proposed corridor study, present coordinated and systematized solutions to improve the efficient management of basic traffic flow, with attention to such issues as the timing of signals, designation of lanes, and limitation of midblock left turns.

who: City staff w/cooperation of MDOT, GEI, and consultant
necessary resources: assumed to be part of corridor study in recommendation I-1 but could be done separately
source: City, MDOT
timeline: 2022

Recommendation I-4: At least for the ten-year duration of this plan, set aside any pursuit of an Ellsworth bypass in favor of other approaches to controlling and reducing traffic congestion in the city.

who: City, GEI
necessary resources: City staff time but minimal.
source: City
timeline: NA

Recommendation I-5: Restrict truck traffic to those roads that have been designed to accommodate them.

who: City, GEI; this is policy development and implementation
necessary resources: City staff time; minimal funds for traffic control devices
source: City
timeline: 2021

Recommendation I-6: Prohibit through truck traffic from any streets outside the primary corridors.

who: City, GEI; this is policy development and implementation
necessary resources: City staff time; minimal funds for traffic control device
source: City
timeline: 2021

Recommendation I-7: Prohibit "engine braking" on major corridors in order to reduce the adverse impacts of truck operation within the city.

who: City, GEI; this is policy development and implementation
necessary resources: City staff time; minimal funds for traffic control device
source: City
timeline: 2021

C. Public Transportation Issues

Recommendation I-8: Catalog and describe the Ellsworth area's available transportation services and create a centralized repository for this information on a city-based website.

who: This could be done by the City w/assistance from GEI or vice versa
necessary resources: City staff time
source: City
timeline: 2021

Recommendation I-9: Ask the city to convene a series of meetings for all transportation providers in the area, with an eye toward coordinating and improving services as well as publicity.

who: This could be done by the City w/assistance from GEI or vice versa
necessary resources: City staff time, GEI, and transportation service providers (e.g., Downeast Transportation)
source: City, GEI
timeline: 2021

Recommendation I-10: Explore the possibility of creating a new, experimental test route that would provide more comprehensive "around town" transportation.

who: This could be done by the City w/assistance from GEI or vice versa
necessary resources: City staff time, GEI, and transportation service providers (e.g., Downeast Transportation)
source: City, GEI
timeline: 2021-22

Recommendation I-11: Examine the need for more extensive intercity service between Ellsworth and other regional destinations.

who: This could be done by the City w/assistance from GEI or vice versa; possible participation by HCPC; possible participation from MDOT
necessary resources: City staff time and from other participants
source: City, GEI
timeline: 2021-22

Recommendation I-12: Designate more bicycle corridors in and around the city.

who: City and GEI
necessary resources: City staff time; funds for traffic control devices over 2 years

source: City, possible participation by MDOT and HCPC
timeline: 2022

Recommendation I-13: Develop a priority plan for renovating sidewalks.
who: City, GEI, Local Roads Committee (LRC)
necessary resources: City staff time
source: City
timeline: 2021-22

Recommendation I-14: Establish an annual budget for sidewalk improvements as part of the city's ongoing capital improvement program. Some sidewalk improvements can thus be made every year going forward.
who: City, LRC
necessary resources: City staff and portion of capital improvements budget (e.g., $200K annueally)
source: City
timeline: 2022 and continuing

Recommendation I-15: Plan and execute the High Street pedestrian demonstration project.
who: City, MDOT, GEI
necessary resources: project estimated to cost $300.000 or more (based on similar sidewalk projects in nearby jurisdictions
source: City, MDOT
timeline: 2022-23

D. Drainage Issues

Recommendation I-16: Develop a priority plan for making drainage improvements in the public right-of-way and other areas necessary for effective drainage of the road system.
who: City, GEI, LRC
necessary resources: City staff time
source: City
timeline: 2021-22

Recommendation I-17: Establish an annual budget for drainage improvements as part of the city's ongoing capital improvement program.
who: City, LRC
necessary resources: City staff and portion of capital improvements budget (e.g., $200K annually)
source: City
timeline: 2022 and continuing

Energy Production, Use, and Conservation

A. Overarching Considerations: An Energy Advisory Committee

Recommendation I-18: Create an Energy Advisory Committee, composed of city residents, business owners, municipal planning and public works staff, and one City Council member.
who: Ellsworth Green Action Team (EGAT), City Council and City Staff (City)
necessary resources: City staff time and volunteer time
source: City, EGAT, general public
timeline: 2021-ongoing

B. Solar Energy

Recommendation I-19: Develop and implement a citywide solar policy.
who: City
necessary resources: City staff time
source: City staff
timeline: 2021 and updated annually

Recommendation I-20: Develop community solar farms whereby Ellsworth residents may buy shares in a solar grid installed on city property (or other leased property) in lieu of installing solar panels on their own roof or property.
who: EGAT, solar power vendors, City
necessary resources: City staff and volunteer time; perhaps use of city owned property
source: City, solar power vendors
timeline: 2022-2027

Recommendation I-21: With assistance from the Natural Resources Council of Maine, adopt a Solarize Ellsworth program whereby Ellsworth residents can use group-purchasing discounts to install solar panels on their private property.
who: EGAT, Natural Resources Council of Maine (NRCM)
necessary resources: volunteer time, small grant to fund the initial publicity
source: NRCM, Maine Community Foundation
timeline: 2021-2027

C. Vehicle Efficiency

Recommendation I-22: Develop and implement a city energy policy for replacing municipal gas-powered vehicles with hybrid or electric vehicles.
who: City
necessary resources: City staff, $30,000 per year in capital funds for purchase of new vehicles
source: City
timeline: 2022-2031

Recommendation I-23: Develop and implement a city energy policy to, when it is practical, reduce the idling of city and school vehicles when they are not in active use.
who: City
necessary resources: City staff time to develop the policy
source: none
timeline: 2022-2031

Recommendation I-24: Encourage the development and deployment of EV charging stations throughout the City of Ellsworth.
who: City, Efficiency Maine (EM), local businesses
necessary resources: volunteer time to promote the concept
source: volunteers and city staff with Efficiency Maine support
timeline: 2021-2031

Recommendation I-25: Develop plans that promote ~~e~~nergy-efficient public transportation and nonmotorized modes of transportation.
who: City, EGAT
necessary resources: City staff planning time, community volunteers with expertise

source: city staff and volunteers
timeline: 2022-2027

D. Building Efficiency

Recommendation I-26: Bring local codes and ordinances into compliance with the Maine Uniform Building and Energy Code, and ensure compliance in all new construction through Planning Board review and code enforcement.

who: City
necessary resources: city staff time
source: city staff, state of Maine codes
timeline: 2021-ongoing

Recommendation I-27: Propose and encourage adoption of a city energy efficiency renovation policy.

who: Green Ellsworth Action Teams; City
necessary resources: City staff time and volunteer time
source: City staff and volunteers
timeline: 2022-2024

Recommendation I-28: Develop weatherization partners to assist with weatherization projects.

who: EGAT, Maine State Housing Authority, Department of Energy Weatherization Assistance Program
necessary resources: volunteers time
source: EGAT, community volunteers
timeline: 2022-2028

E. Community Education and Outreach

Recommendation I-29: Develop and promote the use of energy-related educational programs and materials.

who: EGAT
necessary resources: $5,000 for the development of programs and materials, professionals to develop the materials
source: Maine Community Foundation, volunteers
timeline: 2021-2025

Recommendation I-30: Educate Ellsworth residents and businesses about available state and federal energy-efficiency incentive programs, such as those promoted through the Efficiency Maine Trust.

who: EGAT
necessary resources: volunteer time
source: volunteers
timeline: 2021-ongoing

Solid Waste Management

Recommendation I-31: Explore additional restrictions on plastic packaging and products and follow through to implementation.

who: EGAT, Maine Legislature
necessary resources: volunteer time, political staff time
source: volunteers, political staff and representatives

timeline: 2021-completion

Recommendation I-32: Expand Ellsworth's recycling program to accept more types of materials.

who: City
necessary resources: City staff time
source: City staff
timeline: 2021-2031

Recommendation I-33: Explore ways to expand the current composting program so that businesses and private citizens can and will participate.

who: EGAT, City, Maine Organics
necessary resources: volunteer and staff time
source: coalition of volunteers, city staff, and local businesses
timeline: 2021-2031

Recommendation I-34: The city's Solid Waste Committee should be reconstituted to include residents, businesses, and appropriate city staff in addition to City Council members. The committee should be charged with proactively investigating and recommending solid waste management strategies for Ellsworth.

who: City, EGAT, citizens
necessary resources: participants' time
source: staff, volunteers to serve on the committee
timeline: 2021-ongoing

Recommendation I-35: The City of Ellsworth and Green Ellsworth should continue and also expand successful cleanup initiatives throughout Ellsworth.

who: City, EGAT
necessary resources: $500 per year
source: City
timeline: 2021-annually

Recommendation I-36: Develop and implement a joint city–Green Ellsworth public education program to familiarize the public with solid waste management issues and with actions individuals can take to reduce solid waste.

who: EGAT, City
necessary resources: Staff and volunteer time, $5,000 for materials and development
source: City, city staff, Maine Community Foundation and volunteer
timeline: 2021-ongoing

CHAPTER 5. INTEGRATING ACTIONS

Recommendation IA-1: With the assistance of Green Ellsworth, adopt and operationalize a City of Ellsworth Sustainability Framework drawing on the principles and recommendations laid out in the Green Plan.

who: Green Ellsworth (GE), City
necessary resources: none
source: not relevant
timeline: 2022-2023 and ongoing

Recommendation IA-2: Designate a sustainability coordinator to assist in implementing the city's Sustainability Framework and integrating its principles and objectives across all levels of government.

who: City
necessary resources: possibly initially a role assigned to an existing staff member such as the City Planner or an Assistant City Manager; ultimately a full-time staff member with a responsibility for grant applications and project management related to major sustainaibility initiatives; $60,000 for the latter full-time position
source: City and grant funding for project management overhead costs
timeline: 2022

Recommendation IA-3: With assistance from Green Ellsworth, expeditiously update the city's 2004 Comprehensive Plan to be consistent with a Sustainability Framework derived from this Green Plan and the state's Growth Management Act.

who: City, GE
necessary resources: $40,000 in 2021-2022 budget year and $40,000 in 2022-2023 budget year
source: City
timeline: 2021-2023

Recommendation IA-4: In creating the required Land Use Plan component of the revised comprehensive plan, address related Green Plan recommendations from Chapters 1 through 4 and then implement this Land Use Plan by substantially revising city zoning, the UDO, and other ordinances and regulations.

who: City
necessary resources: none beyond staff time
source: City
timeline: 2021-2023 for plan, 2023-2025 for related zoning and ordinance changes

Recommendation IA-5: Commission a fiscal impact analysis that involves community consultation, to facilitate tax–benefit alignment and an understanding of citizen priorities so as to provide a grounding for City Council budget deliberations.

who: City
necessary resources: $15,000-$20,000
source: City
timeline: 2022-2023

Recommendation IA-6: Bring together a countywide Sustainable Development Network that includes similarly mandated organizations, municipalities, and relevant countywide organizations to share information and foster coordinated sustainability initiatives.

who: Hancock County Commissioners, HCPC, GE, A Climate to Thrive, Blue Hill Reversing Falls Sanctuary

necessary resources: none beyond minor hospitality expenses
source: host for meetings
timeline: 2022 and ongoing

Recommendation IA-7: Develop a phased and integrated stormwater management plan for the city that involves not only upgrading the road and underground infrastructure, but also reducing and limiting impervious surfaces and using conserved and landscaped green infrastructure.

who: City, GE, HCSWCD, FBC, EGC, MGV, DSF
necessary resources: staff and volunteer time but otherwise not other costs beyond those already cited elsewhere in this plan
source: responsible parties
timeline: 2024-2025

Recommendation IA-8: Implement the city's phased stormwater management plan though the integrated and coordinated engagement of multiple city departments, commissions, local organizations, and individual business and residential property owners, in a concerted effort to reverse the current tendency to flush all stormwater directly into our lakes and waterways.

who: City, GE, HCSWCD
necessary resources: staff and volunteer time but otherwise nothing beyond what has already been cited elsewhere
source: responsible parties
timeline: 2025 and ongoing

Recommendation IA-9: Coordinate public marketing and educational programming to support the visions, goals, and objectives articulated across this plan as a whole.

who: GE
necessary resources: volunteer time, nothing else beyond those already cited in Chapters 1-4
source: GE
timeline: 2021-2031

Recommendation IA-10: Working with the school district and the schools as well as partner organizations, enhance current curricular, extracurricular, and experiential learning opportunities relating to the Green Plan's sustainability agenda.

who: Ellsworth School Department, GE, EGC, FBC, DSF, HA
necessary resources: staff and volunteer time, but otherwise no costs beyond those already cited elsewhere in this plan
source: responsible parties; Maine Environmental Education Association; Natural Resources Council of Maine Middle School Grants; EPA Environmental Education Grants; MDI Biological Laboratory
timeline: 2022 and ongoing