Bellingham Comprehensive Plan
Environment Chapter

2016

Photo by Shannon Sweeney

I. Introduction

Photo by Patrick Kennedy.

The Environment Chapter implements the vision of Bellingham as a city with treasured natural features that provide recreation, wildlife habitat, healthy air and water, and astounding beauty. The lakes, streams, forested hillsides, marine shoreline, and other natural features have shaped Bellingham's character. Residents and visitors value the natural resources and count on them being protected to enjoy into the future.

This chapter addresses the key environmental features and values of Bellingham. Residents and City government want to be good stewards of the environment so that future generations of people, and wildlife, can enjoy the same benefits. As a steward, the City is committed to protecting, preserving and restoring the natural environment through , long-range plans, regulations, programs, incentives, educational resources, partnerships, and leadership. The City is planning for future growth and development by being considerate of its environmental features along the way.

With increasing costs of infrastructure, cities are starting to understand and rely more on ecosystem services, or the work provided by nature that benefits people and their communities. Ecosystem services have an economic value that can be calculated when the cost of replacing those services with manmade substitutes has to be considered. For example, without the natural flood protection service wetlands provide, some areas may experience property damage and engineered solutions would need to be developed to lessen the impacts of high volumes of water.

The City strives for sustainability in its projects, practices, and plans so that each of these sectors - the environment, the economy, and the people of Bellingham - are equally considered. Bellingham continues to be an environmental leader with its projects and plans, including habitat restoration projects, energy conservation practices, and Bicycle and Pedestrian Master Plans, to name a few.

The following eight categories address the City's main environmental topics and form the organizational basis for the goals and policies of this chapter:

Lake Whatcom
Shoreline Master Program
Critical Areas
Fish and Wildlife Habitat
Urban Forestry
Air Quality
Climate Change
Energy and Resource Conservation

The Environment Chapter's nine goals mirror the City's Legacies and Strategic Commitments and emphasize the protection and restoration of resources:

GOAL EV-1 **Protect and improve drinking water sources.**

GOAL EV-2 **Limit development in the Lake Whatcom watershed.**

GOAL EV-3 **Protect and restore ecological functions and habitat.**

GOAL EV-4 **Limit urban sprawl and promote sustainable land use planning.**

GOAL EV-5 **Protect and improve the health of lakes, streams, and the Salish Sea.**

GOAL EV-6 **Conserve and maintain natural resources, including the urban forest.**

GOAL EV-7 **Maintain good air quality.**

GOAL EV-8 **Reduce contributions to climate change.**

GOAL EV-9 **Promote interdependence of environmental, economic, and social interests.**

II. Goals and Policies

Lake Whatcom

Lake Whatcom is a local treasure. In addition to its interesting past of coal mines, logging, work boats, summer homes, and a railroad, the lake has served as the City's municipal water supply since 1968. Located on the east side of Bellingham, Lake Whatcom is 10 miles long, includes 5,000 acres in surface area, and is comprised of three "basins", with the northernmost basin, Basin One, situated within the City limits. The area within the City limits is about two percent of the entire 36,135-acre watershed. The zoning within the City limits is primarily residential.

*A **watershed** is a basin-like landform defined by high points that descend into lower elevations and stream valleys, lakes, or marine waters. A watershed carries water "shed" from the land after rain falls. Watersheds come in many sizes. For example, within the Whatcom Creek watershed, there are smaller watersheds such as the Lincoln Creek and Cemetery Creek watersheds.*

Maintaining a sustainable supply of clean drinking water is paramount to the City and the citizens relying on it. Because it is a multiple-use watershed with active forest lands, recreational uses, and residential development, Lake Whatcom faces several significant water quality challenges.

In 1998, Lake Whatcom was placed on the state's list (known as the 303(d) list of the Clean Water Act) of impaired waters for failing to meet standards for dissolved oxygen levels. In subsequent years, total phosphorus and fecal coliform were added to the list of water quality impairments. In response to these listings, a Total Maximum Daily Load (TMDL) study was developed by the Washington Department of Ecology (DOE) to determine the actions needed to return the lake to acceptable water quality standards.

It is largely recognized that residential development is a significant contributor of phosphorus because of runoff characteristics from developed surfaces, particularly lawns. According the City's Lake Whatcom Watershed Annual Build-out Analysis (February 2016), the watershed includes 6,976 homes, 1,610 of which are within the City limits. The remaining development potential is estimated to be 114 units. Special development regulations for the Lake Whatcom watershed are aimed at minimizing impacts from new development and retrofitting those areas currently developed to mimic the natural cycling of water and nutrients.

Joint management of the lake by local jurisdictions commenced formally in 1998 with the signing of the Interlocal Agreement between the City of Bellingham, Whatcom County, and the Lake Whatcom Water and Sewer District (known then as Water District 10). Together, these entities have undertaken many physical projects and regulatory changes to reduce phosphorus loading to the lake.

Efforts the City has undertaken to protect and improve the water quality of Lake Whatcom include:

- Constructing and upgrading stormwater facilities with best available technology;
- Acquiring large land tracts and development rights;
- Adopting stringent development regulations;
- Engaging in public outreach/education;
- Offering homeowner incentives;
- Retrofitting streets with low impact development (LID) components;
- Banning phosphorus fertilizer; and

- Banning carbureted two-stroke boat engines.

GOAL EV-1 Protect and improve drinking water sources.

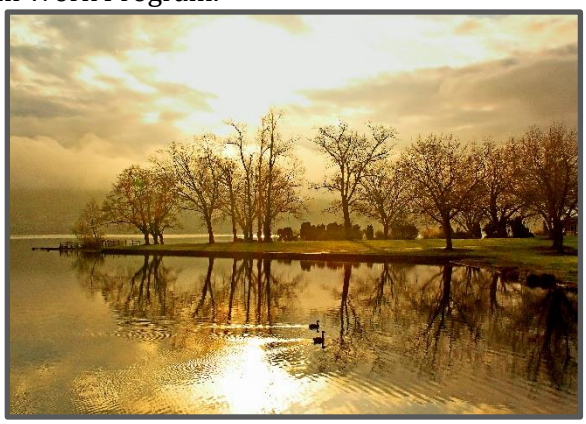
GOAL EV-2 Limit development in the Lake Whatcom watershed. (See the Land Use Chapter and Capital Facilities and Utilities Chapter for more information on the City's goals and policies for limiting development in the Lake Whatcom Watershed.)

Policy EV-1 Focus on protection over treatment in managing Lake Whatcom and its watershed.

Policy EV-2 Emphasize prevention of invasive aquatic species from entering Lake Whatcom.

Policy EV-3 Continue to work in collaboration with Whatcom County, the Lake Whatcom Water and Sewer District, and the Sudden Valley Community Association to develop and implement the five-year Lake Whatcom Work Program.

Policy EV-4 Support the adopted Lake Whatcom Work Program and dedicate the resources to continue to update and implement it.



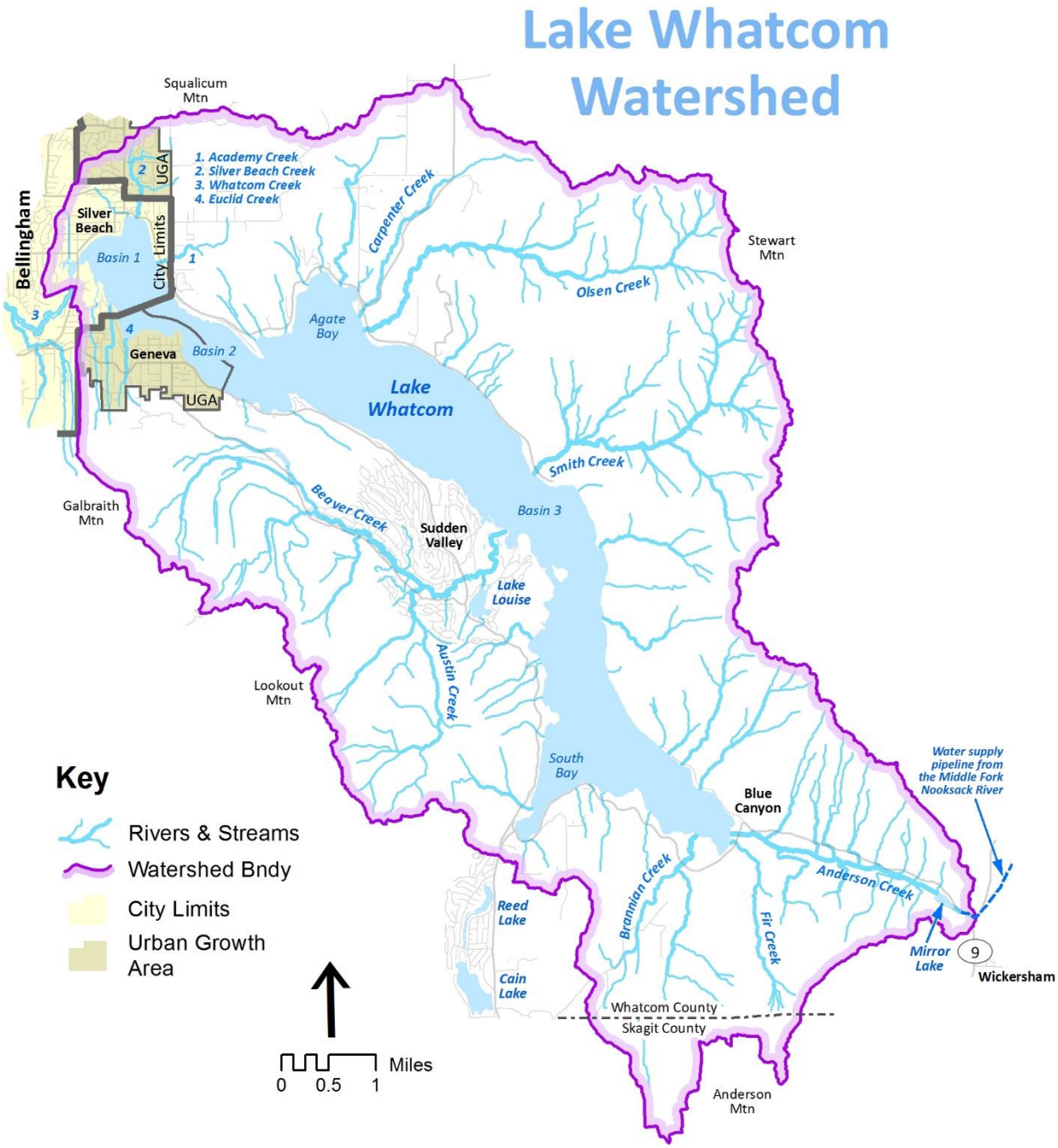
Sunrise at Bloedel Donovan Park at the shores of Lake Whatcom. Photo by Lou Nicksic.

Policy EV-5 Manage recreational uses on the lake and in the watershed in a manner that prevents degradation of water quality and habitat.

Policy EV-6 Implement programs, regulations, and incentives that result in sustainable land use practices, such as LID, that prevent the degradation of water quality in the lake.

Policy EV-7 Continue to designate receiving zones for development rights transferred from the Lake Whatcom watershed in areas of the City appropriate for higher densities.

Policy EV-8 Continue the Lake Whatcom Watershed Property Acquisition Program.


Lake Whatcom Watershed
Squalicum Mtn
Bellingham
Silver Beach
City Limits
UGA
1. Academy Creek
2. Silver Beach Creek
3. Whatcom Creek
4. Euclid Creek
Basin 1
Basin 2
Basin 3
Geneva
Agate Bay
Carpenter Creek
Olsen Creek
Stewart Mtn
Lake Whatcom
Smith Creek
Beaver Creek
Galbraith Mtn
Sudden Valley
Lake Louise
Austin Creek
Lookout Mtn
South Bay
Blue Canyon
Water supply pipeline from the Middle Fork Nooksack River
Brannian Creek
Anderson Creek
Fir Creek
Reed Lake
Cain Lake
Mirror Lake
9
Wickersham
Whatcom County
Skagit County
Anderson Mtn
Key
Rivers & Streams
Watershed Bndy
City Limits
Urban Growth Area
Miles
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Shoreline Master Program

Shorelines are another valued resource in Bellingham. Shorelines are a specifically-designated environmental feature and are protected and managed by the City's Shoreline Master Program (SMP). In Bellingham, the water bodies that are designated as shorelines are Bellingham Bay, Lake Whatcom, Lake Padden, and Chuckanut, Whatcom and Squalicum Creeks, as well as immediately adjoining uplands, wetlands, and floodplains associated with these water bodies.

Adopted in 2013, the SMP implements the Washington State Shoreline Management Act and its policies. These policies include protecting the ecological function of the state's shorelines and their associated natural resources by identifying areas for preferred uses and economic development, restoring previously impacted shorelines, and providing opportunities for the general public to have access to and enjoy shorelines.

The SMP includes an extensive characterization and inventory of shorelines citywide. The goals and policies of the SMP are incorporated into the Environment Chapter by reference. All other parts of the SMP, including use regulations, are considered part of the City's development regulations.

> ***Shorelines*** *under the SMP have a specific definition. They include all the waters of the state, together with the lands underlying them, except on segments of streams upstream of a point where the annual flow is less than 20 cubic feet/second and shorelines on lakes less than 20 acres in size and the wetlands associated with both.*

See the latest adopted Shoreline Master Program for related goals and policies.

Critical Areas

Critical areas as defined in the Growth Management Act (GMA) include wetlands, fish and wildlife habitat conservation areas (including streams), frequently flooded areas, geologically hazardous areas, and critical aquifer recharge areas (there are none in the City). The GMA requires the City to adopt development regulations to protect the functions and values of critical areas and to protect public safety. Each of the City's critical areas are discussed below.

The City adopted its first complete Critical Areas Ordinance (CAO) in December 2005, in accordance with the GMA. The CAO replaced the Wetland/Stream Regulatory Chapter, which was adopted in 1991 as the City's first set of regulations to protect wetlands and streams. The City has adopted several updates to the CAO in order to be consistent with best available science as required by GMA.

Cinnamon Teal at wetland in the Cordata Neighborhood. Photo by Patricia Herlevi.

Wetlands are common in Bellingham and its environs due to specific soil types and abundant hydrology. Wetlands occur in vegetated communities, such as meadows and forests, or as open water, including estuaries. They are found in forests and in fields, with even the smallest wetland providing some ecological function. Wetlands support ecosystems in many ways, including attenuating floodwaters, providing wildlife habitat, and uptaking pollutants and excess nutrients.

Fish and wildlife habitat conservation areas (HCA) include streams, small lakes, and habitats and species that are designated "priorities" by the state. A good local example is the great blue heron colony adjacent to the marine shoreline at Post Point. The colony and the species are listed in the state's Priority Habitats and Species (PHS) list and require protection through an HCA designation.

Priority Habitats and Species *are those resources determined to be unique, special or fragile enough to warrant special regulatory protection. The Washington Department of Fish and Wildlife maintains the PHS list and provides maps and specific protection guidelines.*

Frequently flooded areas in Bellingham are those areas that are within the 100-year floodplain and all other areas that are locally known to flood frequently, but are not in a FEMA-designated floodplain. Frequently flooded areas are designated for protection to ensure maintenance of natural stream processes, protect habitat, and reduce the risk to public safety and properties.

Geologic hazard areas are the type of critical area that is regulated mostly to protect public safety and properties. These include geologic features such as landslide-prone areas, seismic hazard areas, and areas where past mining practices may have created hazards. The marine bluffs found along Bellingham Bay are a visible example of areas that could pose a hazard and, therefore, warrant regulation of nearby activities in order to protect public safety and properties.

GOAL EV-3 Protect and restore ecological functions and habitats.

GOAL EV-4 Limit urban sprawl and promote sustainable land use planning. (See the Land Use Chapter for more information on the City's goals and policies on sustainable land use planning.)

Policy EV-9 Use best available science to preserve and enhance the functions and values of critical areas through policies, regulations, programs, and incentives.

Policy EV-10 Incorporate sustainable land use and design elements into projects early in the planning stages to avoid impacts to critical areas (see Land Use and Community Design Chapters).

Policy EV-11 Promote the use of the Bellingham Habitat Restoration Technical Assessment and other natural resource assessments conducted by the City in project design, development review, and restoration and mitigation project selection to achieve the maximum benefits for preservation and restoration of critical areas.

Other applicable studies the City has conducted include the Water Resource Inventory Area (WRIA) 1 ***Nearshore and Estuarine Assessment and Restoration Prioritization (NEARP)*** *and Citywide wetland inventories.*

Policy EV-12 Safeguard the long-term functions and values of critical areas through effective mitigation measures when avoidance is not feasible.

Policy EV-13 Select wetland mitigation sites for unavoidable impacts based on current state mitigation guidance documents and on the watershed approach with an emphasis on the ecologically-preferable site.

Policy EV-14 Encourage development of mitigation options such as a mitigation bank or in-lieu fee program.

Policy EV-15 Protect, enhance, or restore ecological functions such as flood storage, habitat, and conveyance in frequently flooded areas.

Policy EV-16 Pursue mapping and an inventory of the full range of wildlife species within the City and UGA.

Policy EV-17 Protect critical areas and riparian zones by prohibiting camping in these areas.

Fish and Wildlife Habitat

Bellingham is home to a wide variety of wildlife, from the great blue heron colony at Post Point to chinook salmon in Whatcom Creek, and many more species not always associated with urban areas. The unique geographical setting of Bellingham between mountains and marine waters, combined with intentional efforts of preservation, afford a wide range of habitats and the wildlife that depend on them.

The City's 2015 ***Bellingham Habitat Restoration Technical Assessment*** *will help City departments, developers, environmental groups, and citizens select restoration, mitigation, and preservation opportunities and determine where to focus general restoration and protection efforts within the City and UGA.*

Bellingham is a community that values wildlife, including protection for and restoration of wildlife habitat. Unlike many urban areas, Bellingham is fortunate to have functioning wetlands, streams, and forests within the City limits. Nevertheless, fragmentation and loss of habitat have occurred over the decades. Therefore, the City recently developed the first Bellingham Habitat Restoration Technical Assessment (November 2015), a science-based document meant to guide habitat restoration and preservation efforts.

The main way in which wildlife and habitat is sustained in urban environments is through preservation and restoration of both site-specific and interconnected habitat corridors and blocks. Through planning, connections can be preserved even as development occurs. The Bellingham Habitat Restoration Technical Assessment, combined with the CAO, SMP, and State Environmental Policy Act (SEPA), provide the basis for protecting habitat and the wildlife dependent on it.

Arroyo Park Bridge. Photo by Linda Wright.

Water Quality and Quantity

Among Bellingham's many natural resources are the numerous streams that flow through the City, most of which support fish and other aquatic life. Water quality is of the utmost importance in sustaining the community's aquatic resources. Restoration projects installed to improve fish habitat will not be successful without good water quality and quantity.

All drainage courses, streams, lakes, wetlands, and marine waters, also known as "receiving bodies", support aquatic life. With the City's interest in protecting the community's natural resources, a great effort has taken place to enforce stormwater regulations,

build and maintain stormwater facilities, and provide citizens with knowledge about what they can do to protect and improve water quality.

Controlling pollutants and discharge rates is best done at the source, and the most effective way to achieve that is through best management practices (BMPs) such as those found in the state's Stormwater Management Manual for Western Washington. The DOE continues to revise its list of BMPs to improve their effectiveness in protecting water quality in order to meet state standards with recent emphasis on LID techniques.

LID is a stormwater management strategy that emphasizes the use of existing natural site features integrated with small-scale stormwater controls to more closely mimic natural hydrologic patterns with a focus on infiltration. LID techniques include preserving existing native vegetation, designing development to fit site characteristics, minimizing impervious surfaces, and infiltrating stormwater on site.

Restoration

The goal of restoration is to re-establish ecological processes and functions into a persistent, resilient system. Re-establishing ecological processes creates habitat structure that results in improved habitat function. Restoration in urban areas presents several challenges, including limited site availability, contamination, fragmented habitat, and/or competing needs for land resources.

The City gives special consideration to protecting the streams and other ecological resources that support fish through the CAO, SMP, and floodplain regulations. Because life cycles of fish depend on functions throughout the watershed, effective measures to conserve and protect them must comprehensively address watershed conditions, water quality, the rate of stream flow, and the condition of the immediate riparian habitat.

*The **Squalicum Creek Re-route** project involves re-routing large sections of Squalicum Creek around Bug Lake and Sunset Pond into a new channel, reactivating remnant channels and reconnecting the stream with its floodplain.*

The City has focused on the restoration of fish habitat and related water quality of all streams. The three main streams (Squalicum Creek, Whatcom Creek, Padden Creek) that flow through the urbanized areas of Bellingham have all undergone major restoration to restore natural stream functions and improve fish habitat. Still, many tributaries and contributing drainages are subject to stormwater runoff quality and quantity that are heavily impacted by urban runoff.

The Padden Creek daylighting project will improve creek conditions for salmon and other wildlife.

Acquisition

Fish and wildlife habitat is retained, in part, through the City's purchase and management of parks, open space, trail corridors, some of which are funded by Greenway levies. Acquisition has been an important

tool in preserving habitat, retaining habitat connectivity and corridors, and providing the opportunity for restoration.

GOAL EV-5 Protect and improve the health of lakes, streams, and the Salish Sea.

Policy EV-18 Identify and conserve wildlife habitat, considering the full range of the life-cycle needs for the species dependent on it.

> ***Life cycle*** *refers to the stages through which a living organism passes from the beginning of life to the end. Salmon, for example, have a complex life cycle of six states, starting with the fertilized egg and ending as a spawning adult salmon.*

Policy EV-19 Ensure coordination among City departments in planning, constructing, and maintaining City facilities and infrastructure to maximize protection of fish and wildlife habitat.

Policy EV-20 Work in cooperation with other agencies and organizations to support biodiversity and protection and preservation of native vegetation, fish, wildlife, and pollinator habitat.

Policy EV-21 Maximize the use of LID techniques to protect water quality and sustain watershed processes.

Policy EV-22 Maximize the use of integrated pest management and discourage the use of herbicides and pesticides.

> ***Integrated pest management (IPM)*** *uses knowledge of pest control biology to develop monitoring tools and control technology that result in economically sound, environmentally compatible, and socially responsible pest management in diverse systems (e.g. crop production, urban, and natural settings).*

Policy EV-23 Protect habitat and habitat corridors used by wildlife, fish, and pollinators from the impacts of development, where feasible.

Policy EV-24 Incorporate sustainable land use and design elements into projects early in the planning stages to avoid impacts to fish and wildlife (see Land Use and Community Design Chapters).

Great Blue Heron. Photo by Trisha Offin.

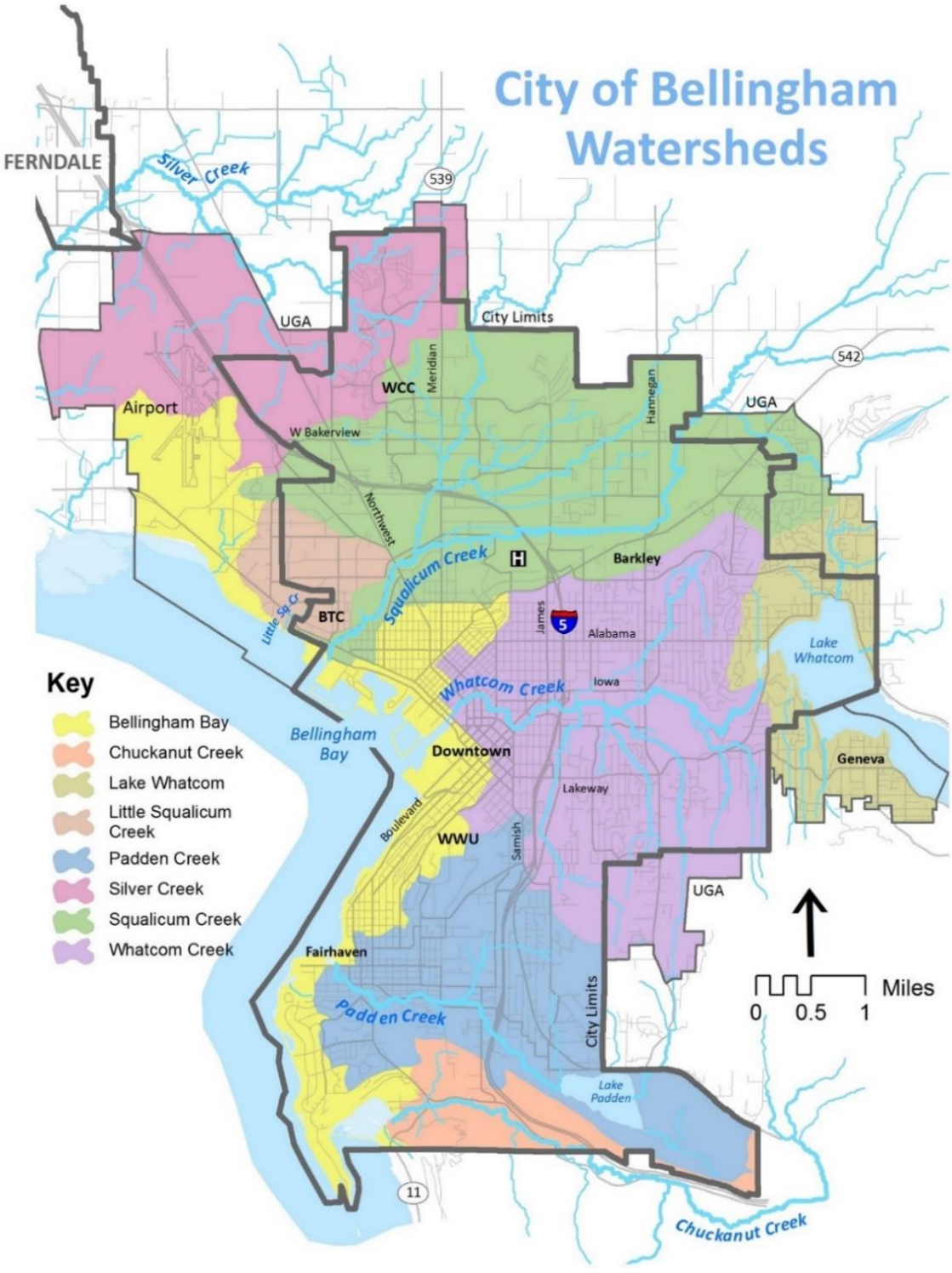
Policy EV-25 Protect and restore habitat through policies, regulations, programs, and incentives.

Policy EV-26 Limit public and pet access and their impacts to the most sensitive and unique habitats and employ measures to minimize impacts from public access.

Policy EV-27 Minimize light and noise impacts on fish and wildlife habitat.

Policy EV-28 Provide natural area and open space linkages within developed areas.

Policy EV-29 Share data and emerging science on sea level rise with habitat restoration planners early in the planning process.



Urban Forestry

Bellingham's urban forest consists of all the trees in the City on both public and private property, including street trees, park trees, forested parklands, trees on institutional campuses and trees in many private ownership settings, ranging from parking lots to backyards. Trees not only beautify an area, but they also provide shade, reduce levels of noise and dust, increase property values, reduce stormwater runoff, produce oxygen, absorb carbon dioxide, improve wellbeing, and provide habitat for wildlife.

The City's urban forest should be managed in a way that optimizes the environmental, economic and social benefits it provides. An urban forestry management plan is the best tool for maintaining a healthy and desirable urban forest. This type of plan guides a broad range of actions to achieve a sustainable urban forest. A baseline inventory of the existing tree canopy is key to determining future canopy targets and goals. As of 2013, approximately 29.9% of Bellingham included tree canopy, defined as vegetation at least 20 feet high.

***Trees and forests** are integral elements of the community's "green infrastructure'. These resources, along with restoration projects, are some of the only infrastructure whose value increases over time.*

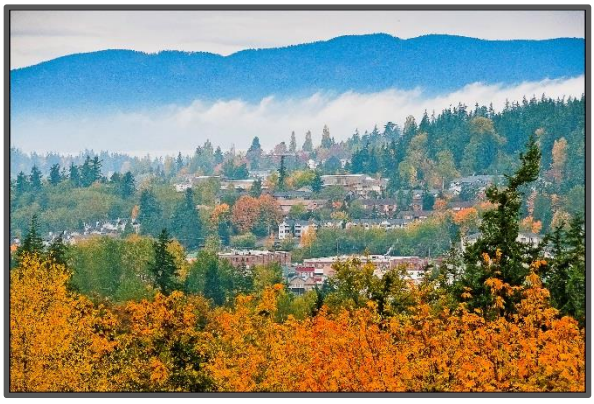
The citizens of Bellingham value the beauty and benefits of trees and make an effort to preserve them. Since 1995, Bellingham has been designated by the National Arbor Day Foundation (NADF) as a "Tree City USA". That means that the City has met the NADF criteria that address regulatory protection and have allocated resources for tree care. The 2015 Bellingham Habitat Restoration Technical Assessment provides a starting point for mapping and managing open spaces, including urban forests.

GOAL EV-6 Conserve and maintain natural resources, including the urban forest.

Policy EV-30 Create and support a comprehensive urban forestry management plan that includes such elements as a Citywide tree canopy baseline, Citywide tree canopy target, and street tree goals.

Policy EV-31 Provide operation and maintenance resources for management of the urban forest and public open space areas.

Policy EV-32 Promote greater knowledge of trees and tree care to the citizens of Bellingham.



Happy Valley Neighborhood with Lummi Island in the background. Photo by George Cvetkovich.

Policy EV-33 Utilize the ecological benefits of trees when designing and installing stormwater management facilities.

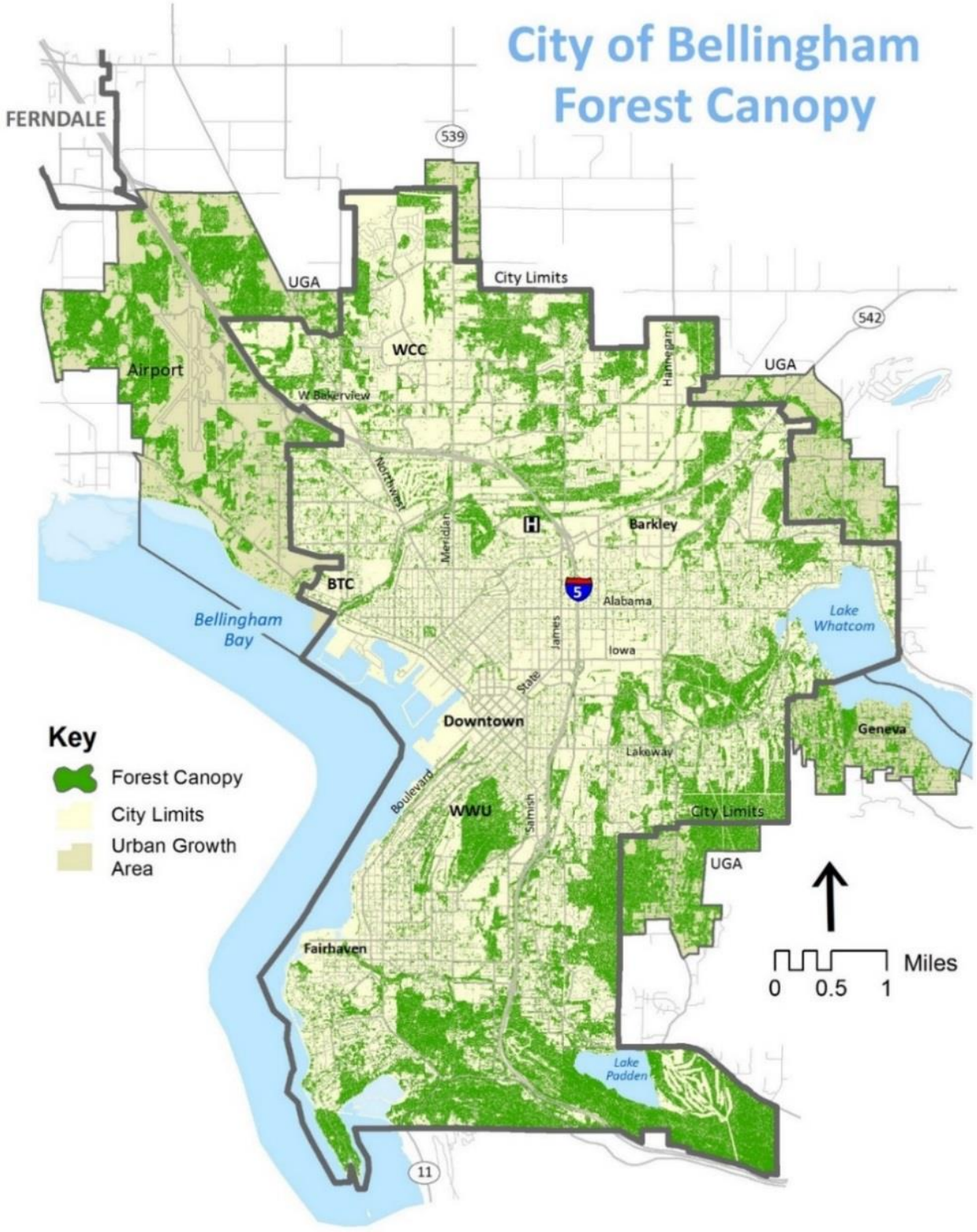
Policy EV-34 Encourage the preservation and planting of street trees and trees on private property using the "right tree, right place" concept.

Policy EV-35 Consider the role of trees as habitat when evaluating sites for development and making decisions about trees.

Policy EV-36 Encourage the removal of invasive plant species in forested areas and educate the community about invasive species that impact local trees and forests.

The Right Tree for the Right Place.
Trees provide substantial economic, ecological, and community benefits. As the City continues to urbanize, the key to realizing these benefits is to select the right tree and plant it in the right place. This assures a healthy tree that will not be in conflict with human activities.

Policy EV-37 Provide mechanisms for identifying and protecting trees that the community places a high value on, such as heritage or landmark trees.


City of Bellingham
Forest Canopy
FERNDALE
539
UGA
City Limits
542
WCC
Airport
W Bakerview
Hannegan
UGA
Northwest
Meridian
Barkley
BTC
5
Alabama
Bellingham
Bay
James
Iowa
Lake
Whatcom
State
Downtown
Geneva
Lakeway
Boulevard
WWU
Samish
City Limits
UGA
Key
Forest Canopy
City Limits
Urban Growth
Area
Fairhaven
Miles
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Lake
Padden
11

Air Quality

Bellingham's geographic position, combined with hydroelectric power as its principal means of generating electricity, result in good air quality, as reported by the DOE and Northwest Clean Air Agency. Combustion of fossil fuels to generate electricity is the largest single source of carbon dioxide emissions in the United States, followed by the transportation of people and goods. Bellingham is fortunate to have power from hydroelectric facilities.

Ozone occurs in two layers of the atmosphere - the stratosphere and troposphere.

Ozone found high above the Earth *in the stratosphere is considered "good" because it protects people, plants and animals from the sun's ultraviolet rays.*

Ground-level ozone *in the troposphere is considered "bad" because it affects human health and the environment. Ozone pollution forms when emissions from sources such as vehicles, lawn mowers and industrial uses react with heat and sunlight. It is harmful for everyone, especially children, the elderly, and people with respiratory problems.*

Promoting sustainable growth and development is essential if the City is to maintain its good air quality in the long term. Land use policies that promote a decreased reliance on single-occupancy vehicles, planning practices that place greater emphasis on multimodal transportation options, natural resource conservation practices that reduce the urban heat island effect, and green building practices that increase resource efficiency make clean air easier to achieve.

GOAL EV-7 Maintain good air quality.

Policy EV-38 Continue coordinated land use and transportation planning through implementation of the City's urban village plans and transit-oriented development along transit corridors (see Transportation and Land Use Chapters).

Policy EV-39 Promote alternatives to the single-occupancy vehicle, including car-sharing, telecommuting and transit, as strategies for reducing vehicle-related air pollution (see Transportation Chapter).

Policy EV-40 Advocate for healthy indoor air quality and support education and outreach on measures individuals can take to protect their health.

Policy EV-41 Consider the role of trees in maintaining good air quality.

Photo courtesy of Whatcom Council of Governments.

Climate Change

Leading scientists worldwide predict that climate change will have serious environmental, economic, and public health consequences in coming years. The burning of fossil fuels and deforestation on a global scale have caused heat-trapping greenhouse gases (GHGs) to increase in the atmosphere and prevent the heat from escaping into space.

The City became active in addressing climate change issues in 2005 when the City Council adopted Resolution 2005-08, committing the City to participation in the Cities for Climate Protection (CCP) Program. This program is administered by the International Council for Local Environmental Initiatives (ICLEI), of which the City is a member. The resolution was a commitment by the City to achieve ICLEI's five milestones. Three milestones have already been achieved - the development of a baseline emissions inventory and forecast of future emissions growth, identification of an emissions reduction target, and adoption of an action plan.

Climate Protection Action Plan

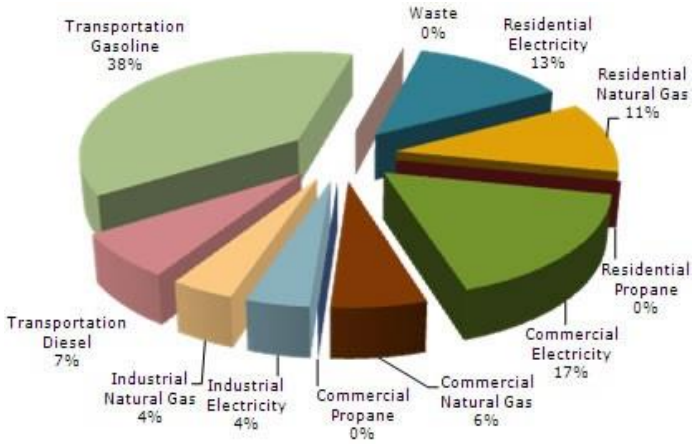
The 2007 Climate Protection Action Plan (CPAP) describes three phases of municipal government and community actions aimed at reducing the City's GHG contributions, as well as actions to adapt to the impacts of a changing climate. Phase I quantified actions taken between 2000 and 2007 to reduce GHG emissions. Phase II identified next steps toward reducing GHG emissions from both municipal operations and the community. Phase III is incorporated into the 2016 CPAP update and focuses on climate adaptation measures, GHG emissions' monitoring, and evaluating and updating past and future GHG reduction measures.

GHG emissions were inventoried for the base year of 2000 and for the interim analysis year of 2005. Based on the findings of the inventory, a survey of existing and possible measures and a review of other communities' targets, GHG reduction targets were adopted for municipal operations and separately for the entire community.

Greenhouse gases *trap heat in the atmosphere, making Earth warmer. Carbon dioxide is the most important greenhouse gas emitted by humans, but other gases, such as methane, nitrous oxide and fluorinated gases, also contribute to climate change.*

The GHG targets for City government are: reduce GHG emissions by 64% from 2000 levels by 2012 and by 70% from 2000 levels by 2020. GHG reduction targets for the community are a 7% GHG reduction from 2000 levels by 2012 and 28% from 2000 levels by 2020.

In the base year 2000, the community of Bellingham emitted approximately 950,793 tons of carbon dioxide. By far the largest emissions came from the transportation sector, with diesel and gasoline emissions accounting for 44.2% of all emissions. When electricity-based emissions from residential, commercial and industrial sectors were combined, they accounted for 34.7% of the total community emissions. The figure below shows the breakdown of community emissions by sector and source type.



Bellingham Greenhouse Gas Emissions, 2000 - 2020 (Source: CACP Model output)

Climate Change Adaptation

In addition to implementing measures to reduce GHG emissions, the City has developed a draft Climate Adaptation Plan (CAP) that identifies strategies that will increase the community's resiliency to expected and unavoidable impacts to our natural and built environments. The main sectors anticipated to be most affected by climate change and those addressed in the CAP are water resource management, energy management, and ecosystem management, including coastal infrastructure.

Climate change adaptation strategies for western Washington encourage planning for a sea level rise of up to 50 inches by the end of the century, according to the University of Washington Climate Impacts Group. Sea level rise poses threats to infrastructure and public safety. If combined with a storm surge, sea level rise can threaten coastal infrastructure such as railroads, roads, trails, buildings, water and wastewater distribution systems and other utilities. Impacts can also occur to nearshore ecological processes with increased shoreline and bluff erosion and inundation of coastal nearshore habitat features.

GOAL EV-8 Reduce contributions to climate change.

Policy EV-42 Mitigate for and adapt to climate change through implementation of the City's Climate Protection Action Plan.

Policy EV-43 Continue to develop and adopt the City's Climate Adaptation Plan.

Policy EV-44 Promote resiliency to climate change and natural disasters and coordinate efforts with neighboring jurisdictions (see Whatcom County Natural Hazards Mitigation Plan).

Policy EV-45 Strive to meet or exceed the City's goals and commitments for reducing greenhouse gases.

Policy EV-46 Promote energy efficiency in both municipal buildings and in buildings throughout the community.

Policy EV-47 Encourage renewable energy sources such as solar power.

Policy EV-48 Promote integrated land use and transportation planning (see Land Use and Transportation Chapters) and sustainable building practices to reduce greenhouse gas emissions.

Solar panel retrofit on building near Old Village Trail.

Policy EV-49 Foster a multimodal transportation system that minimizes environmental impacts, connects people to services and jobs, and reduces reliance on fossil fuels (see Transportation Chapter).

Policy EV-50 Preserve the existing water supply and ensure an adequate future water supply despite capacity impacts associated with climate change.

Policy EV-51 Encourage public-private partnerships with higher education institutions, nonprofit groups and other agencies to reduce GHG emissions.

Energy and Resource Conservation

In 2007, Bellingham was recognized by the U.S. Environmental Protection Agency (EPA) as Washington's first Green Power Community. The community also received the EPA's Green Power Purchaser Award in 2007 for making a significant purchase of renewable energy, which helps build the market for green power. Recognizing that buildings use a large amount of energy and resources, the City has embarked on a number of programs in its municipal operations, as well as with the community, to reduce energy consumption.

In 2009, the City adopted the Energy and Resource Conservation (ERC) Policy to increase conservation efforts through operational and behavioral changes within municipal operations. Ultimately, this policy is designed to ensure a sustainable future by reducing the impact of City government operations on the environment.

Bellingham was one of the first cities in the nation to be awarded an EPA grant as a Climate Showcase Community. An outgrowth of that is the Community Energy Challenge (CEC), which began in 2010 and since that time has resulted in county-wide energy improvements to homes and businesses that have reduced greenhouse gases and energy use. The CEC was also designed to create local contractor jobs, which was a focus during the Great Recession.

The City has been promoting green building methods since the early 2000s. In 2005, the City approved Resolution No. 2005-21, committing the City to meeting the LEED (Leadership in Energy and Environmental Design) Silver rating for the construction of all new and renovated City buildings over 5,000 square feet when the City provides the majority of funding. In 2010, the City instituted a program that expedited building permit review for projects that implemented LEED or Built Green techniques. The program became permanent and continues to be used by residential, commercial, and institutional building projects.

As a renewable energy source, solar power is rapidly growing in our region, partly because cities like Bellingham are reducing installation barriers. Also, the utility companies support it. In April 2016, Governor Jay Inslee proclaimed Bellingham as one of several Northwest Solar Communities, acknowledging community initiatives that have increased residential solar installations by nearly 500 percent since 2013.

GOAL EV-9 Promote interdependence of environmental, economic, and social interests.

Policy EV-52 Provide convenient means for energy and resource conservation within municipal operations and throughout the community.

Policy EV-53 Investigate the economic feasibility of developing and implementing district heating systems.

> ***District heating*** *is the use of a centralized boiler installation (heat-only boiler or heat from a combined heat and power plant) to provide heat for a number of buildings.*

Policy EV-54 Increase the efficiency of water and energy use in municipal facilities.

Policy EV-55 Encourage energy-efficient site and building designs to increase efficiency, preserve natural resources, and reduce life-cycle costs.

Policy EV-56 Promote and encourage the use of green building rating systems, such as LEED, in all buildings.

Policy EV-57 Reduce solid waste generated from municipal facilities through increased opportunities, capacity and education for recycling and composting.

Kateri Court is a LEED-certified building consisting of commercial spaces and affordable studio and one-bedroom apartments.

Policy EV-58 Encourage the preservation and renovation of historic structures for multiple benefits, including energy and resource conservation.

> *On its most basic level,* ***historic preservation*** *is the practice of conserving resources. Not only do restoration and redevelopment projects consume less energy than demolition and new construction, but preservation also recovers the worth of past energy investment.*

Policy EV-59 Promote the disposal of hazardous and other wastes, including pharmaceuticals, in a manner that is safe to the environment and public health.

Policy EV-60 Coordinate with state and federal agencies to support and encourage the cleanup of contaminated soil and other environmental remediation activities.

Policy EV-61 Foster policies and programs so that environmental benefits are equitably distributed and environmental burdens are minimized.