# Draft Climate Action Plan

## A Plan for Mitigating and Adapting to Climate Change on Bainbridge Island

October 1st, 2020

**LETTER FROM YOUR CITY COUNCIL**

To the Bainbridge Island Community

The time for collective action on climate change has arrived. In recent years, we have seen the impacts of climate change in our region and right here on our Island, from warmer temperatures and wildfire smoke to rising seas and flooding. Scientists tell us that these impacts will only increase and intensify in the future. If we wait, the changes will be irreversible, and coping with them will be enormously costly.

In order to combat climate change, actions are needed at all levels of government - federal, state, and local. That means that the City of Bainbridge needs to step up. The City Council recognizes the urgency and in June 2020 passed a resolution declaring a climate emergency for the Island and reaffirmed the City's commitment to climate action now.

But we can't do it alone. We need to work hand-in-hand with businesses, community organizations, faith communities, local schools, individuals and families across our Island community if we are to meet this global challenge.

We have established an aggressive goal of reducing our community greenhouse gas emissions by 90% by 2045 compared to 2014 levels. The City and City Council are committed to putting in the time, energy, and resources needed to be successful, and to protect this Island and our community for future generations.

This Climate Action Plan provides a roadmap for how we can address climate change in City operations and our community. We have already initiated a few of the highest priority actions, including the establishment of the Green Building and Sustainable Transportation Task Forces, which have already begun their work toward guiding us in reducing energy use in buildings and developing options to get people out of their cars.

The Plan also recognizes the need to adjust to our changing climate and prepare for more frequent and intense climate change impacts. It provides a pathway to enhance our community resilience and infrastructure to be climate ready.

This Climate Action Plan is a call to action for the City, local businesses, and community members. Now it is time that we join together and do our part to make the only planet we have a better one for our present and future generations.

We ask that you join us in this journey to a carbon-free future.

**Sign Off from Mayor on behalf of council or something else.**

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## Acronyms

BARN - Bainbridge Artisan Resources Network
BD – Bainbridge Disposal
BIFP – Bainbridge Island Fire and Police
BILT – Bainbridge Island Land Trust
BIMA - Bainbridge Island Museum of Art
BIMPRD - Bainbridge Island Metro Park and Recreation District
BIPF – Bainbridge Island Park Foundation
BISD – Bainbridge Island School District
BIZW – Bainbridge Island Zero Waste
CAP – Climate Action Plan
CETA - Clean Energy Transformation Act
CH4 - Methane
CCAC - Climate Change Advisory Committee
COBI – City of Bainbridge Island
CTR – Commute Trip Reduction
EV – Electric Vehicle
FOTF – Friends of the Farm
GHG – Greenhouse Gas
IWTP – Island-Wide Transportation Plan
LEED - Leadership in Energy and Environmental Design
$MTCO_2e$ - Metric Tons of Carbon Dioxide Equivalents
MW - Megawatt

$N_2O$ - Nitrous Oxide
NOAA – National Oceanic and Atmospheric Administration
PSE – Puget Sound Energy
PSRC - Puget Sound Regional Council
PV - Photovoltaic
SLR – Sea Level Rise
WSF – Washington State Ferries
WWTP - Wastewater Treatment Plant


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# Executive Summary

## Executive Summary

The climate is changing. We know this and we need to take action now. It is urgent that we dramatically reduce our greenhouse gas (GHG) emissions and make our community more resilient to the related impacts we will experience.

In 2016, the City of Bainbridge Island (COBI) incorporated climate change into its updated Comprehensive Plan. The Comprehensive Plan has seven guiding principles, with #7 specifically related to climate change:

***Reduce greenhouse gas emissions and increase the Island's climate resilience.***

The City Council established the Climate Change Advisory Committee (CCAC) in the fall of 2017. The CCAC was established to serve as a technical and planning advisory committee to the City Council, City Manager, and City staff on issues related to climate change. In 2019, the City Council tasked the CCAC to develop a Climate Action Plan (CAP) for the Island.

## ES.1. Why do we Need a Climate Action Plan?

The CAP is a comprehensive roadmap that outlines specific actions that COBI and the community can undertake to reduce GHG emissions and increase our resilience as the climate changes. The CAP supports City policies already in place, including the Comprehensive Plan, Shoreline Master Plan, and Critical Areas Ordinance, and provides guidance on how principles and objectives outlined in those programs can be implemented to mitigate and adapt to the impacts of climate change on Bainbridge Island.

## ES.2. What are the Anticipated Climate Change Impacts on Bainbridge Island?

Bainbridge Island is expected to experience a wide range of changes and associated impacts from climate change on our hydrology, vegetation, shorelines and surrounding waters (Table ES1).

**Table ES.1 Projected Changes and Associated Impacts from Climate Change**

| Area | Impacts |
|---|---|
| Rising Sea Levels | • Damage to or loss of City assets such as roads<br>• Damage to or loss of private property<br>• Erosion<br>• Salt water intrusion |
| Extreme Weather Events | • Increased flooding of roads and private property<br>• Potential for slope instability and erosion<br>• Increase in power outages |
| Increasing Temperatures | • Increased risk of heat-related illness<br>• Increase in drought conditions<br>• Changes in disease vectors |
| Vegetation Change | • Changes in dominant vegetation. |

| Area | Impacts |
|---|---|
| | ● Decreased tree growth and increased fire risk for Summer water stress<br>● Changes in pest distribution and type of pest |
| Hydrologic Changes | ● Changes to surface and groundwater availability, quality, and timing<br>● Changes to extent of stream discharge<br>● Drought stress on vegetation |
| Ocean Acidification | ● Decreased pH in ocean waters<br>● Damage to marine organisms (e.g., oysters) and related economic impacts.<br>● Implications from sewage and septic discharge. |

## ES.3. Bainbridge Island's Greenhouse Gas (GHG) Emissions Inventory

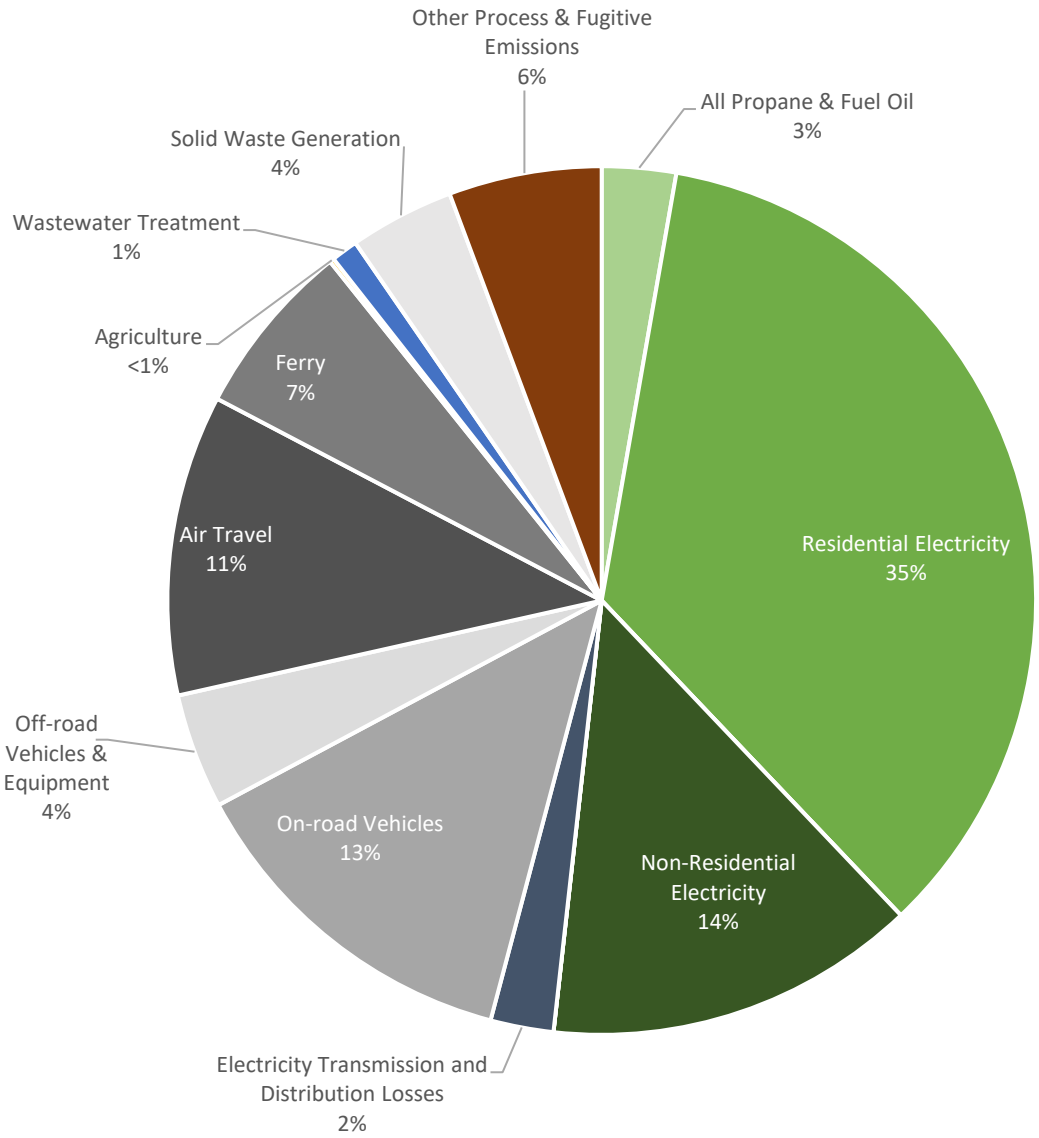
COBI completed a GHG emissions inventory in October 2019[1] that quantified emissions produced by the Bainbridge Island community (the community inventory) and COBI operations (the municipal inventory). A consumption-based inventory was also developed to estimate GHG emissions from the goods and services we consume.

The inventory accounts for human-caused emissions of the most prominent and typical GHG emissions for communities: carbon dioxide ($CO_2$), methane ($CH_4$), and nitrous oxide ($N_2O$). To account for the differences in potency among these gases, all emissions are calculated and reported in units of metric tons of carbon dioxide equivalent ($MTCO_2e$). Bainbridge Island's estimated total community emissions for 2014 were 214,425 $MTCO_2e$ or 9.3 $MTCO_2e$ per person. In comparison, Seattle has an estimated per person emissions of about 5 $MTCO_2e$, Bellevue about 12 $MTCO_2e$, and Washington State 13 $MTCO_2e$.

In 2014, the majority of GHG emissions on Bainbridge Island came from residential and commercial electrical use (51%), while transportation contributed about 35%, and with other sources contributing about 14% (Figure ES.1).

As COBI and the community take action to reduce GHG emissions, these inventories will serve as tools for tracking progress and making improvements along the way.

**Figure ES.1 Bainbridge Island Community Emissions by Source, 2014 (Total = 214,425 $MTCO_2e$)**



## ES.4. Development of the Climate Action Plan

The CCAC and COBI gathered community input on what we should do to reduce GHG emissions and prepare our Island for the impacts from climate change. Community engagement activities included:

- An on-line survey taken by over 450 community members.
- Two community meetings attended by over 150 people.
- Monthly Climate Change Advisory Committee meetings open to the public to provide input.

## ES.5. Climate Action Plan Goals

The CAP has three goals (see inset): one for mitigation, one for adaptation, and one for community engagement. The CAP identifies actions designed to achieve those goals. It will be important to conduct periodic updates to the GHG emission inventory to determine progress in meeting these goals.

**BI Climate Action Plan Goals**

**Mitigation**: Reduce greenhouse gas emissions by 90% by 2045 compared to 2014 levels with interim milestones of 25% reduction by 2025 and 60% by 2035 compared to 2014 levels.

**Adaptation:** Bainbridge Island is climate savvy, and can withstand the impacts of climate change.

**Community Engagement**: COBI inspires community action and partners with local and regional organizations to take meaningful and equitable climate change mitigation and

The CCAC has conducted an analysis of pathways to reduce our community emissions to meet our mitigation goal. Reductions are grouped into three action areas that need to occur to meet the 2045 mitigation goal (Figure ES.2).

In Figure ES.2, the value of the bar indicates the percent reduction associated with a particular action area. For example, State policies are estimated to reduce emissions from a 2014 baseline of approximately 214 MtCO2e to approximately 89 MtCO2e when fully implemented by 2045 (59% GHG reduction from 2014 levels). Primary CAP-identified actions could bring us down to 55 MtCO2e if fully implemented (an additional 16% or 75% total GHG reduction). Finally, partnerships and other actions could take us down to about 21 MtCO2e or 90% total GHG reduction by 2045 from 2014 levels.

### 1. State Actions

In 2019, the Washington State legislature passed the Clean Energy Transformation Act (CETA)[2]. CETA requires the State's electrical supply to be free of coal by 2025, carbon neutral[3] by 2030 and 100% carbon-free by 2045. They also passed legislation that requires the phase-out of

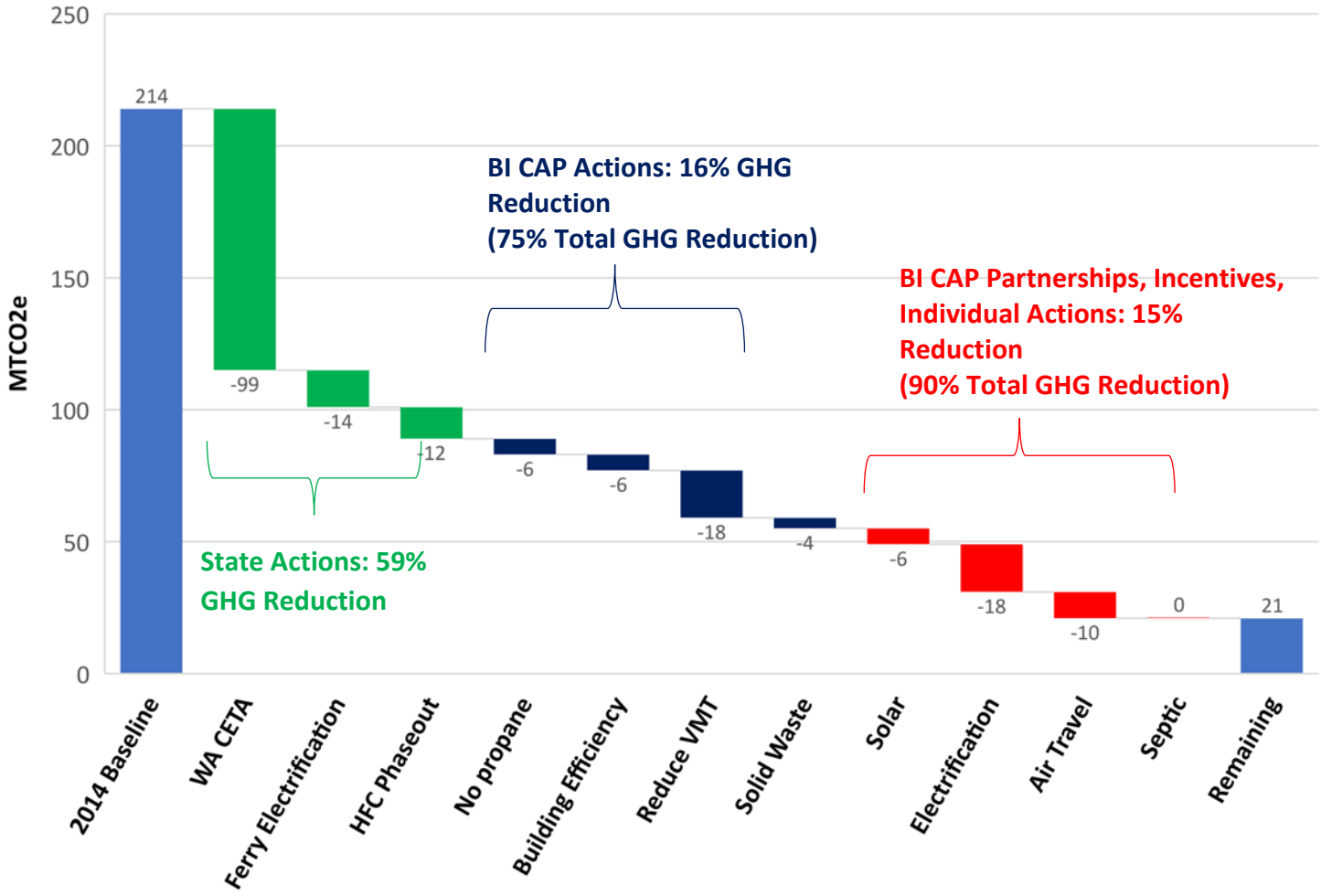
hydrofluorocarbons.[4] In addition, the ferries from Bainbridge Island to Seattle will be able to run on 100% electric power as of 2022. These actions will contribute about 59% of the 90% GHG reductions needed to meet the 2045 mitigation goals.

**2. Bainbridge Island Actions**

These actions are related to specific actions such as: not allowing propane or fuel oil as a primary fuel in new developments; adopting a green building code, reducing vehicle miles traveled, and reducing amount of waste landfilled. These actions will contribute about 16% of additional GHG reductions. In combination with State polices, they will contribute about 75% of the 90% of GHG reductions needed to meet the 2045 mitigation goals.

**3.Partnerships, Incentives, and Individual Actions:** About 15% of GHG reductions will come from community and individual actions such as: installing community solar projects; replacing internal combustion transit with electric cars, bikes, and buses; and reducing the amount of air travel.

**Figure ES2: Reductions in GHG from State and Local Actions**



## ES.6 Recommended, Priority and Immediate Actions

The CAP includes over 180 recommended actions to reduce GHG emissions and prepare our community from the impacts of climate change. The CCAC identified about 75 "priority actions" from the total recommended actions. Priority actions were determined based on a ranking process that include five criteria.

- **Mitigation or adaptation**: Potential for the action to reduce GHG emissions (mitigation) and/or potential for the action to reduce vulnerability to effects of climate change (adaptation).
- **Implementable**: The action is both technically and logistically feasible and has been implemented in other jurisdictions.
- **Duration of benefits**: The length of time over which the benefits of the action will persist.
- **Equity**: The action will contribute to or support social justice, equity, diversity and inclusion within our community.
- **Co-benefits**: The action will produce co-benefits (e.g., air pollution reduction; economic opportunities; improved transit; preserve natural resources).

All of the recommended actions are included in the CAP below. A more detailed description of the priority actions with milestones and timeframe are included in Appendix A.

In addition, the CCAC recognized it was important to identify a smaller subset of the priority actions as immediate actions that can help jump start implementation of the CAP and provide the biggest near-term reductions in GHG emissions.

Table ES.2 provides a list of those immediate actions that can be initiated, and in some cases completed, over the next 9-12 months. The actions identified on Table ES.2 are a mix of actions. Some can be completed quickly and others need to be initiated now as they will take multiple years to complete. Identifying this smaller subset of immediate actions enables the CCAC to better support COBI as it starts to implement the CAP and provides a clear and transparent road map for our Community on what are the immediate steps, we need to take to start reducing our GHG emissions.

**Table ES.2 Immediate Actions for Next 9-12 Months**

| Area | Action |
|---|---|
| **Implementation** | **5.A.1.b/6.A.1.c/7.D.1.a**: Use the EcoAdapt Climate Change Adaptation Certification Tool in COBI decision making. |
| | **9.B.1.a**: Equity implications are addressed in all actions |
| | **8.C.1.b/8.C.1.a**: Hire City staff to coordinate and lead climate efforts and review existing authorities. |
| | **9.D.1.a**: Develop cost estimates and staffing needs for priority actions. |
| **GHG Inventory** | **2.A.1.a**: Improve accuracy of GHG Inventory. |
| **Energy** | **3.A.1.b**: Work with PSE to reduce our energy demand. |
| | **3.B.1.a:** Work collaboratively with PSE, via the PSE Franchise to green our energy supply. |
| | **3.B.1.c**: Prohibit propane, fuel oil, and wood stoves for primary heating in new buildings. |
| | **3.A.2.a**: Initiate discussions on establishing a Green Building and Energy Fund |
| **Transportation** | **4.A.1.a**: Support the recommendations from the Sustainable Transportation Task Force and ensure potential GHG emission reductions are considered in all options considered by Task Force. |
| | **4.B.1.a**. Transition COBI's fleets to primarily electric vehicles, use biofuels where not an option, and encourage other Bainbridge Island taxing districts to also develop a plan. |
| | **4.B.2.a**. Evaluate current code to see if a need to increase the number of EV-charge-ready for all new development/major renovations and multifamily units/commercial development include EV charging infrastructure. |
| **Buildings** | **5.A.1.a:** Support the recommendations from the Green Building Task Force. |
| | **5.B.1.a., b., and c**: Build on preliminary sea-level rise assessment endorsed by CCAC. |
| **Natural Environment** | **6.A.2.a**: Create list of tree and plant species expected to be favored by climate change that can be used for forest management and restoration actions. |
| **Waste** | **7.A.2.a**: Pass an ordinance to reduce single-use plastics. |
| **Community Engagement** | **8.A.1.a. and b**: Develop a web presence for climate change on City website and make climate information widely and easily available to all community members. |
| | **8.C.2.a:** Establish equitable access to recharging generators and cell phones during outages, and provide emergency food/water/filtered air during poor air quality due to wildfires. |

## ES.7. Individual Actions

In addition to the actions identified above, that the City is responsible for implementing, there are numerous actions individuals can take to reduce GHG emissions and prepare our Island for current and future climate impacts. These actions fall into six categories:

- Participate in Community Climate Action
- Reduce Energy Use
- Reduce Waste
- Reduce Water Use
- Reduce Use of Internal Combustion Vehicles
- Reduce Vulnerability to Climate Change.

*Section 10: Individual Actions – What Can We Do to Make a Difference,* identifies examples of actions that individuals throughout our community can take.

## ES.8. Implementation and Future Updates

The Bainbridge Island City Council will be responsible for oversight and making policy decisions to support implementation of the CAP. COBI staff will integrate CAP goals and strategies into City operations and decision-making and report back on progress.

Achievement of the climate goals will require that COBI staff, community members, business leaders, and institutions all take actions. COBI staff will work to support community members in taking climate action and involve residents in implementation decisions.

Because climate change most negatively affects vulnerable communities, implementation of the CAP should advance equity while addressing climate change. COBI staff will work to establish partnerships with underserved communities, build capacity for climate leadership across the community, and involve diverse community voices from the start of any program. The priority actions for Implementation are described in detail in Section 9 below.

The 2020 CAP represents the beginning of an ongoing and iterative conversation between COBI and the community it serves. COBI will work with the community, local partners, and technical experts to update the CAP every three to five years, so that we can respond to changing circumstances and learn from implementation challenges and successes. The next GHG emissions inventory will be completed by 2022 for the year 2021. The GHG emissions inventory after that will be completed by 2026 for the year 2025 and then they will be completed every 5 years.

# Section 1: Introduction

## Section 1: Introduction

We are in a climate crisis of our own making to which we must respond. Climate change will impact Bainbridge Island in multiple ways, including sea level rise resulting in loss of land (including homes, roads and habitat) and altered precipitation patterns resulting in less groundwater recharge, increased potential for wildfire, and changes in vegetation.[5]

The urgency to substantially reduce our greenhouse gas (GHG) emissions and make our community more resilient to climate change requires that we take significant action now. Waiting puts our community, economy and our children's future in peril.

A 2018 report from the Intergovernmental Panel on Climate Change[6] stated that to keep global temperatures below 1.5°C compared to pre-industrial levels will require net zero global carbon emissions by approximately 2050. This conclusion is also supported by the 4th National Climate Assessment[7] and many other scientific publications[8,9] and entities.

In 2016 the City of Bainbridge Island (COBI) demonstrated its concern for climate change when it incorporated climate change into the updated Bainbridge Island Comprehensive Plan.[10] The Comprehensive Plan has seven guiding principles, one of which explicitly addresses climate change (see side bar).

**BI Comprehensive Plan Guiding Principle #7: Reduce greenhouse gas emissions and increase the Island's climate resilience.**

Guiding Policy 7.1: Participate with state, regional and local partners to reduce greenhouse gas emissions consistent with the 1990 benchmark and future year targets set forth in state law, educate the public about climate change and incentivize Island activities including land use patterns and building practices that reduce greenhouse gas emissions.

Guiding Policy 7.2: Minimize or ameliorate the impacts of climate change on our community and our Island's ecosystems through climate-informed policies, programs and development regulations.

Guiding Policy 7.3: Evaluate the climate vulnerabilities and implications of City actions and identify policies that alleviate those vulnerabilities. Consider the effects of shifting conditions (sea level rise, changing rainfall patterns, increasing temperatures and more extreme weather events) and the effects they cause (altered vegetation, changing water demands, economic shifts).

In 2017, COBI again showed its commitment to address climate change when it established the Climate Change Advisory Committee (CCAC), with a mandate to provide the City with recommendations for a Climate Action Plan.

In developing the Climate Action Plan (CAP), the CCAC followed the five milestones approach suggested by ICLEI[11], a global organization which has been working for more than 20 years to assist local governments in reducing their GHG emissions and preparing communities for the impacts of climate change.

The five milestones below offer a systematic approach to dealing with climate change. The specific actions the City has taken, or intends to take, for each milestone are summarized below.

- **Milestone 1**: A GHG emissions inventory was completed by Cascadia Consulting Group for COBI. The inventory covered emissions from City operations and from the Community as a whole. A summary of the results is included in Section 2.

- **Milestone 2:** The CCAC recommended a reduction target for GHG emissions. The target is discussed below.

- **Milestone 3**: The CAP was developed over a 12-month period after significant input from the Community and interaction with the City Council and COBI staff. The CAP includes a number of goals necessary to meet the reduction targets. The specific strategies and actions needed to meet the goals are discussed in Sections 3-8.

- **Milestone 4**: The next step is to implement the actions identified in the CAP. This is discussed in Section 9.

- **Milestone 5**: The evaluation and monitoring of progress is critical to ensure the actions identified are effective in reducing GHG emissions and preparing the Island for the impacts of climate change.

It will also be important to use the information from the evaluation and monitoring to make changes to the CAP as needed and adaptively manage those changes over time.

## 1.1. Why develop a Climate Action Plan?

The CAP is a comprehensive roadmap that outlines the specific activities that COBI and the community can undertake to reduce GHG emissions and increase our resilience to the climate changes that are occurring now and will intensify in the future.

The CAP considers both mitigation and adaptation strategies and actions. **Mitigation** responses reduce GHG emissions, while **adaptation** responses increase resilience and/or decrease vulnerability. Combined, these two approaches create a comprehensive, integrated strategy for addressing climate change.[12]

Mitigation can be achieved through approaches such as more sustainable development, higher-density development, fewer vehicle miles traveled, more use of non-motorized transportation, more electric vehicles, green building standards, and renewable energy sourcing.

Adaptation addresses the effects of climate change, including sea level rise, altered precipitation patterns with related flood and drought impacts, and increased temperatures. Approaches include: low-impact development; retreat of buildings and infrastructure from rising seas; climate certified zoning, permitting and procurement; and climate-savvy hazard mitigation and resource management.

## 1.2. Federal, State, and Local Climate Policy

In June 2013, President Obama presented a Federal Climate Action Plan setting forth a plan and policies to cut carbon emissions, prepare for climate change impacts, and lead international climate protection efforts.[13]

In December 2015, all but two countries (who have since joined) in the world signed on to the Paris Climate Agreement to limit global warming to less than 2° C (3.6° F) above pre-industrial levels. They also agreed to stop the rise of GHG emissions as quickly as possible, with an aspiration to limit warming to 1.5° C (2.7° F).

On June 1, 2017, President Trump initiated the process to remove the United States federal government from the Paris Climate Agreement and is seeking to nullify the obligation to contribute aid to less developed countries. When this change takes effect in 2020, the U.S. will be the only National government not participating in the Paris Agreement as the original two holdouts, Syria and Nicaragua, subsequently joined in November 2017.

Responding to President Trump's announcement, hundreds of cities - including Bainbridge Island (see Resolution 2017-20) [14]- , 10 states, and thousands of U.S. corporations and institutions joined the "We Are Still In"[15] campaign, declaring their continued commitment to meeting the reduction goals of the Paris Agreement.

Currently, the Federal government is not taking an active role in climate change issues. Given the lack of federal action, many city and state governments along with a number of corporations are now leading U.S. efforts to reduce emissions and prevent catastrophic climate change.

Washington State enacted several measures during the 2019 legislative session to reduce GHG emissions. They mandated GHG reductions from energy generation, put in place incentives for electric cars, provided resources to electrify the State's ferry fleet, required higher efficiency standards for appliances, and mandated a phase out of the very potent greenhouse gases, hydrofluorocarbons.[16]

In 2016, the City of Bainbridge Island incorporated climate change into its Comprehensive Plan. The City Council has also passed several resolutions in support of climate change actions. And in

2017, the City Council established the CCAC.[17] The CCAC was established to serve as a technical and planning advisory committee to the City Council, city manager, and COBI staff on issues related to climate change. The Council requested that the CCAC develop a Climate Action Plan (CAP) for the Island.[18]

The development of the CAP is an important milestone on the path to reducing GHG emissions and preparing our Island for the effects of climate change. However, the real work starts now: **implementation of the CAP recommendations**.

Implementation will require the City to make difficult decisions on priorities and identify the funding and/or staffing for the critical actions. Success will also depend on the Bainbridge community's involvement and individuals' taking meaningful personal action to respond to this climate crisis.

The CAP is intended to be a living document, modified over time to adapt to the City's and community's changing conditions. The many contributors to this document hope the CAP can provide clear guidance in helping Bainbridge Island do its part in combating climate change.

**BI: Recent climate related City proclamations, resolutions, and ordinances**

- Relating to Climate Emergency (Resolution 2020-05)
- National Drive Electric Week 2019 (Proclamation).
- Supporting Green New Deal (Resolution 2019-14).
- Endorsing Clean Air Energy Initiative 1631 (Resolution 2018-27).
- Affirming Support for Paris Climate Agreement (Resolution 2017-20).
- Supporting a carbon pricing policy for Washington State (Resolution 2017-04).
- Establishing a Climate Change Advisory Committee (Ordinance 2017-03).
- Integrated climate change into the Comprehensive Plan (Ordinance 2017-01).

## 1.3. Bainbridge Island Climate Impact Assessment

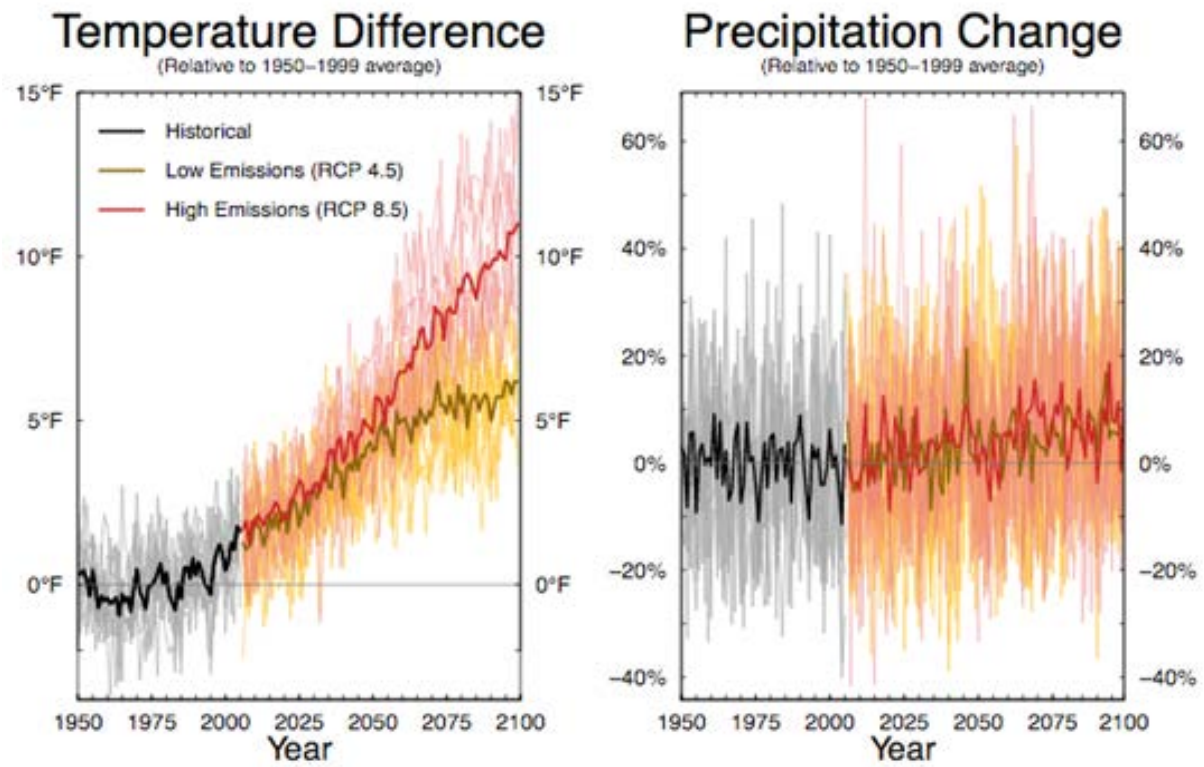
The effects of climate change relevant to Bainbridge Island can be categorized in terms of six impact areas: temperature, precipitation/extreme weather, sea level rise, vegetation change, ocean acidification and slope stability.

**Temperature**

Our climate has warmed over the past century and temperatures are expected to continue to increase over the 21st century.[19] We have already experienced about 1.3° F (0.7° C) of warming by 2014 and the frost-free season has lengthened by 30 days. The projections are represented in Figure 1.1 as historical temperature and with two potential future trends based on either Low Emission (RCP 4.5) or High Emissions (RCP 8.5) scenarios.

RCP stands for 'Representative Concentration Pathway.[20] RCPs were used in the latest IPCC report to make projections of how human activities will affect concentrations of GHG in the atmosphere and the resulting increase in temperatures. The four RCPs range from very high (RCP 8.5) through to very low (RCP 2.6) future concentrations. The numerical values of the RCPs (2.6, 4.5, 6.0, and 8.5) refer to the concentrations in 2100.

**Figure 1.1 Regional Projections for Changes in Temperature and Precipitation[21]**




Between now and mid-century, average annual air temperatures are projected to increase between 4 to 5.5° F (2.2 to 3.1° C), with even greater warming projected in the years thereafter.

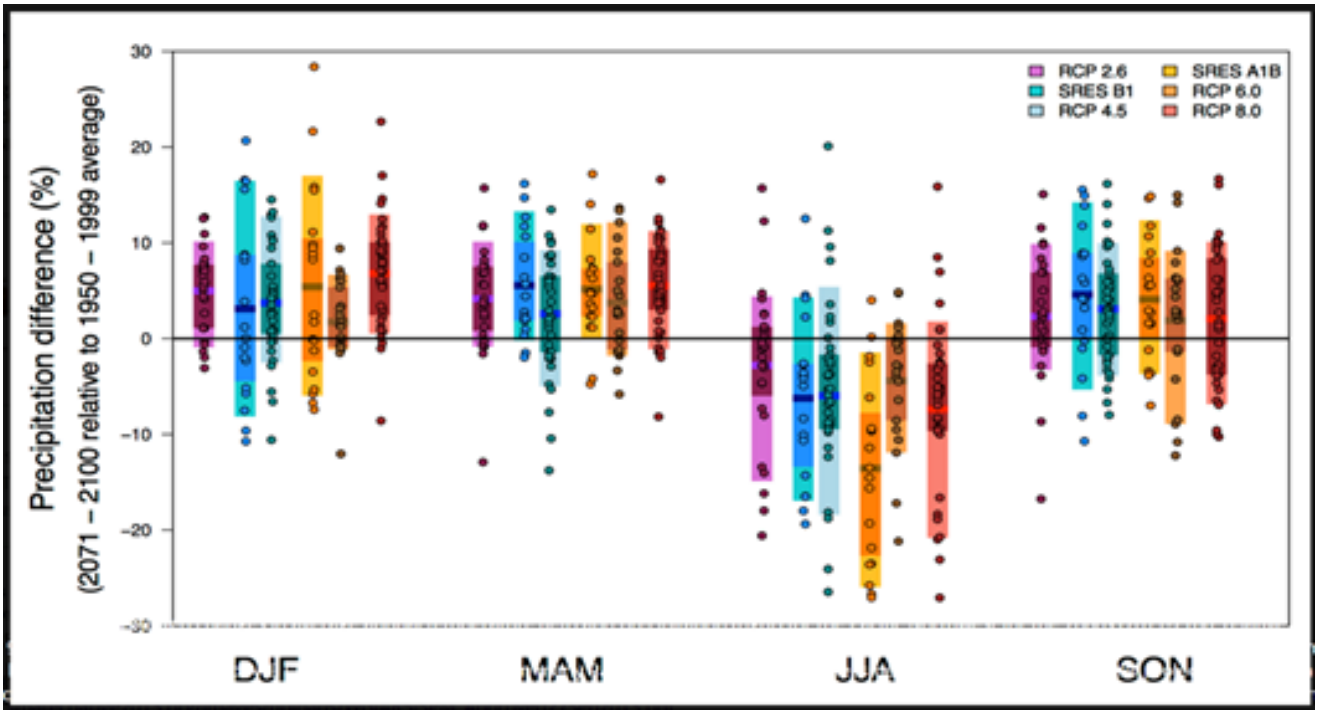
This warming, unlike warming observed to date, which has not yet substantially affected spring temperatures, is expected to affect all seasons, with the greatest increase in summer months.

Increasing temperatures can affect our human demand for water and will increase the water requirements of Island vegetation (natural systems, agriculture and landscaping). Increasing temperatures will also affect our terrestrial, freshwater and marine ecosystems. In addition, this will impact human health by increasing the likelihood of heat-related illness and diminished air quality.

**Precipitation/Extreme Weather**

There has not been a long-term change in total regional precipitation (Figure 1.1). However, there has been a "modest increase" in heavy rainfall events. It is projected that year-to-year variation in precipitation is expected to increase for all seasons except summer, which is expected to see declining precipitation[22] (Figure 1.2). Additionally, extreme winter precipitation events are expected to be more intense (+22%) and more frequent (seven events per year, up from two events per year historically).

**Figure 1.2 Projected Difference in Precipitation by Season for the Pacific Northwest Based on Six Climate Scenarios [23]**




Increasingly intense winter precipitation events have significant implications for all things affected by episodic flooding, including homes, businesses and critical infrastructure as well as marine and terrestrial species and their habitats. For example, increasing numbers of extreme weather events may overwhelm stormwater infrastructure that was designed to handle lower peak flows. Intense precipitation also negatively affects groundwater recharge rates (faster-moving water has less time to infiltrate) and surface water quality (more intense rainfall picks up more contaminants, nutrients and sediments).

Declining precipitation during the summer, already our dry season, may result in decreased groundwater recharge rates as well, which may not be offset by more intense winter precipitation when more water runs off into the Sound. Decreased precipitation will also change the types of vegetation that can thrive on our Island. The mix of increased temperatures, water-stressed vegetation and above ground power lines (which are the majority of our transmission and distribution lines on Bainbridge Island) may increase our fire hazard as experienced in California, which has had catastrophic fires over the past several years.

**Sea Level Rise**

Central Puget Sound waters have risen by more than 8 inches during the past century.[24] Continued warming is expected to accelerate rising sea levels over the next century and beyond. The most likely projections (i.e., central estimates for RCP 8.5 scenario) indicate that relative to average sea level during the period 1991-2009, Bainbridge Island will experience additional sea level rise of about:

- 5 inches by 2030;
- 10 inches by 2050;
- 28 inches by 2100: and
- 46 inches by 2150.[25]

Projections vary widely according to different emissions scenarios and other factors, but again, each of the above amounts are projected to eventually occur.

A limited number of public assets, primarily related to sewer service in and around Eagle Harbor and some low-lying streets, have already experienced or will soon experience inundation from sea level rise, especially during king tides.[26] Other vulnerable assets include Washington State Ferries terminal and maintenance facilities, the Wyckoff Superfund site, Fay Bainbridge Park, and to a lesser extent, the Winslow Wastewater Treatment Plant.

The most significant impact will be to private property owners around the Island, many of whom currently experience occasional nuisance flooding, although some coastal habitats such as coastal wetlands, accretion beaches, and forage fish spawning areas will also be impacted. [27]

By the middle of this century, many waterfront residences will face severe flooding, and in some cases, permanent inundation. High risk areas include Hedley Spit/Point Monroe, Manitou Beach, and Schel Chelb Estuary/Point White Drive (see Figure 1.3). Figure 1.3 represents todays extreme high tide. According to central estimates it will occur annually by the 2060's and monthly by 2090's. Accelerated bluff erosion will threaten high-bank properties and many septic systems Island-wide. Increased saltwater intrusion will stress ground water resources, marine riparian vegetation, and low laying septic systems near the shoreline.

**Figure 1.3 Hedley Spit/Point Monroe, Lynwood Center and Eagle Harbor with Annual Projected Sea Level Rise by 2060**[28]

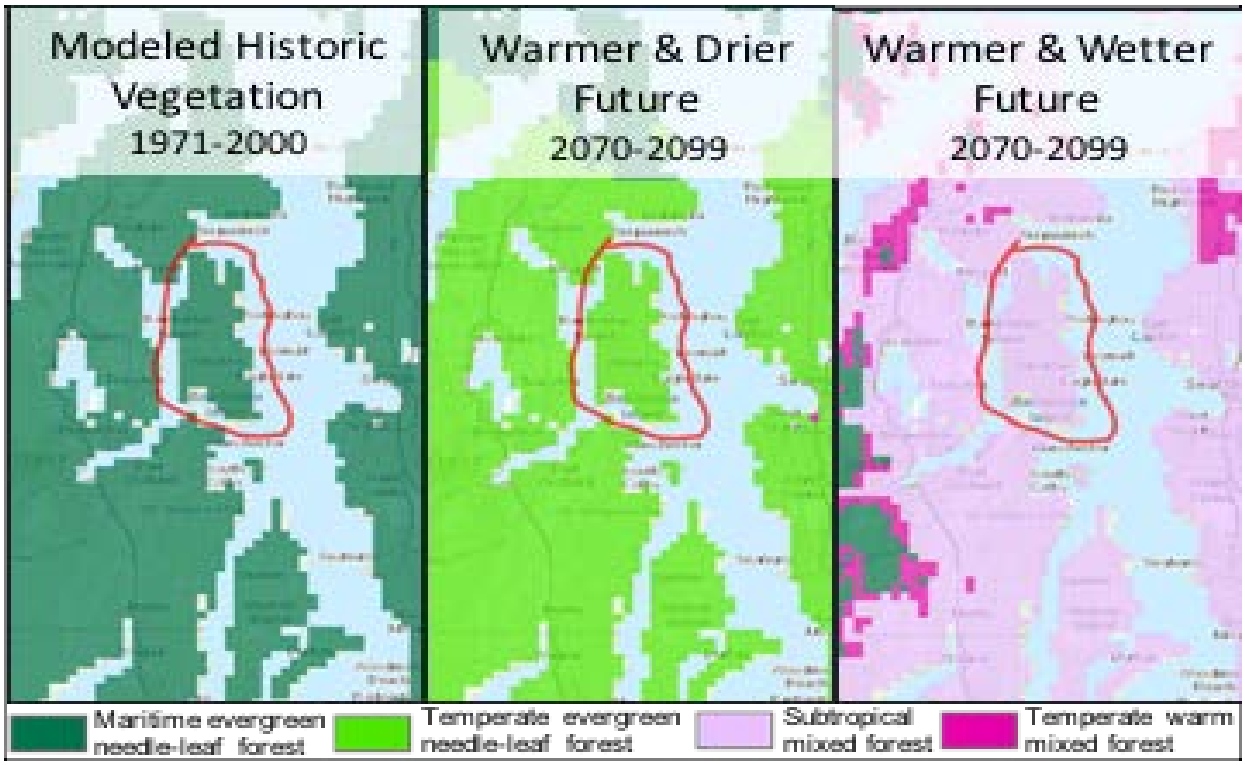
**Vegetation Changes**

Changes in our local climate (e.g., increasing temperatures, decreasing summer precipitation) are anticipate to affect local vegetation — forests, other natural habitat, horticulture and agriculture.

Washington's forests are likely to experience significant changes in the establishment, growth, and distribution of tree species as a result of increasing temperatures, declining snowpack, and changes in soil moisture. A rise in forest mortality is also expected due to increasing wildfire, insect outbreaks, and diseases. The projected changes could affect both the spatial distribution and overall productivity of many ecologically and economically important Pacific Northwest tree species, including Douglas-fir, ponderosa pine, lodgepole pine, and whitebark pine.[29]

Summer water stress will decrease tree growth and increase fire risk. These changing conditions (e.g. climatological, heat and water stressed plants) are also likely to cause changes in pests. Therefore, although the length of our growing season may increase, more extreme stressful conditions (heat, drought, flooding) coupled with pest pressure from new species and altered seasonality may adversely affect agriculture, landscaping, forests, and associated wildlife.

**Figure 1.4 Projected Vegetation Changes for Bainbridge Island Based on MC1 Models of A2 SRES Emission Scenarios [30]**




Currently Bainbridge Island has a maritime evergreen needle leaf forest. While there is considerable uncertainty in the compositional change in forests, Figure 1.4 shows a potential transition to a temperate evergreen needle leaf forest or subtropical mixed forest by the end of the century. This will depend on the changes in temperature and precipitation in our area. If it is warmer and drier then the type of forest is projected to transition to a temperate forest. However, if it is warmer and wetter than a more subtropical mixed forest is projected

Local marine habitat will also see changes in flora and fauna. Issues of particular concern include increasing magnitude and frequency of harmful algal blooms. Algal blooms can adversely affect shellfish, finfish, submerged aquatic vegetation (e.g. eelgrass), marine food webs and air quality, due to increasing temperature and altered pH and diminished dissolved oxygen (hypoxia) in the water column as a result of warmer temperatures.[31]

**Ocean Acidification**

As carbon dioxide levels increase in the atmosphere, more carbon dioxide is absorbed by the world's oceans, resulting in ocean acidification. This phenomenon is reflected in Puget Sound. Measurable declines in pH have already occurred and are expected to continue.[32]

The impacts of ocean acidification on Puget Sound may be further compounded by changes in circulation and salinity due to several factors: changing runoff (heavy precipitation, declining snowpack); increasing water temperatures; and declining oxygen (hypoxia). These impacts have

implications for activities that affect or rely on water quality, including aquaculture and municipal sewage discharge compliance. Our understanding of the ramifications of ocean acidification is just beginning, with new revelations being made regularly.

An important concept to consider is blue carbon. Blue carbon is the carbon stored in coastal and marine ecosystems. Coastal ecosystems such as tidal marshes and seagrass meadows sequester and store more carbon per unit area than terrestrial forests and are now being recognized for its role in mitigating climate change.[33]

**Slope Stability**

Climate change produces several conditions likely to affect slope stability. It increases soil saturation due to altered precipitation intensity and timing; changes the vegetation that holds slopes together, due to altered precipitation and increased temperatures; increases erosion, due to sea level rise and altered precipitation; and undermines hillsides, due to sea level rise and flooding.

## 1.4. Results from Community Survey and Workshops

As part of developing the CAP, the CCAC conducted a web-based survey to help inform the CCAC on Bainbridge Island residents' existing knowledge of local impacts from climate change, their level of concern, and their willingness to support local action by the City and broader community. The CCAC considered the responses from the survey when planning the community workshops and developing the CAP.

There were 443 responses to the web-based survey. In comparison to the general demographics of Bainbridge Island the respondents were generally older, female, from the Central part of the Island and have no children at home (Table 1.1).

**Table 1.1 Demographics of Respondents to Community Climate Survey**

| | Survey | Bainbridge[34] |
|---|---|---|
| **Age:** | | |
| Under 18 | <1% | 25% |
| 18-24 | 1% | 3% |
| 25-44 | 16% | 17% |
| 45-64 | 40% | 31% |
| >64 | 43% | 24% |
| **Gender** | | |
| Female | 59% | 51% |
| Male | 35% | 49% |
| Other | 6% | Not reported |
| **Children at Home** | | |
| Yes | 31% | 32% |
| No | 69% | 68% |

**Figure 1.5 Knowledge of Climate Change Impacts in General and on Bainbridge Island**

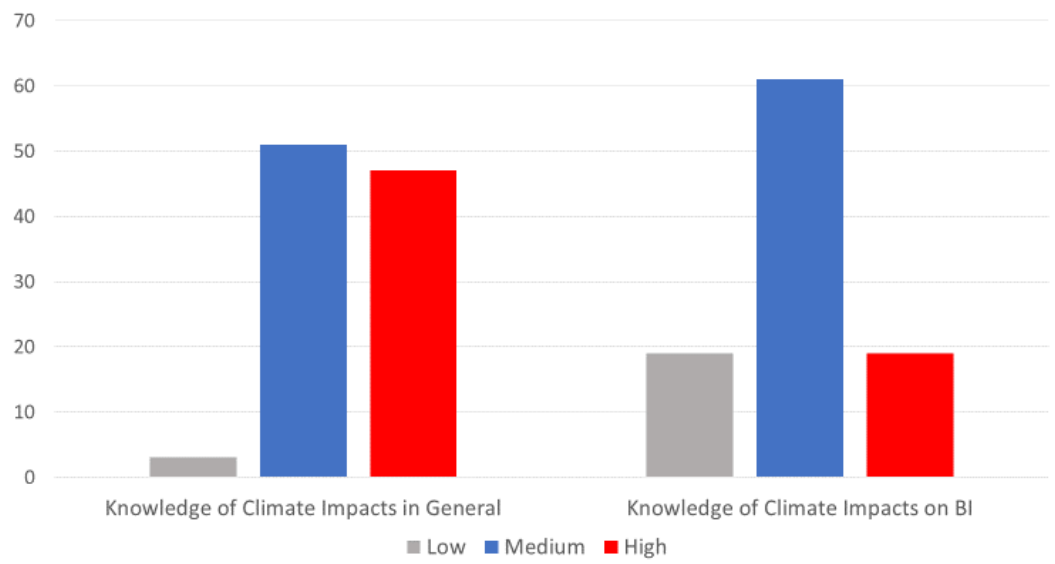
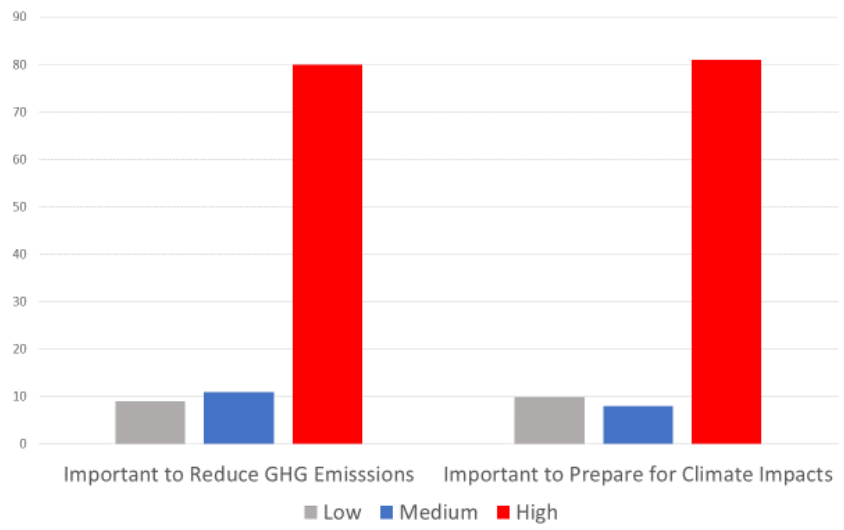
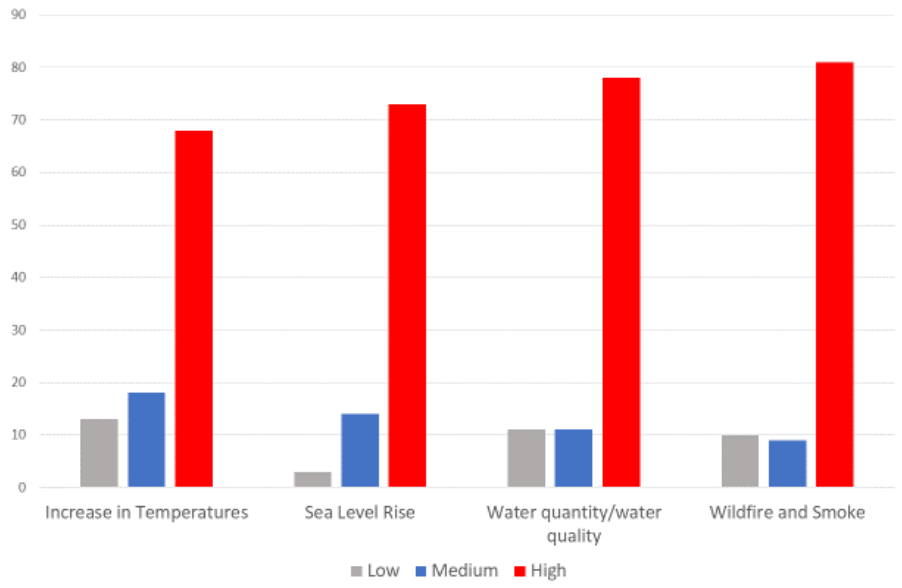



**Figure 1.6 Importance of Reducing GHG Emissions and Preparing for Climate Impacts on Bainbridge Island**



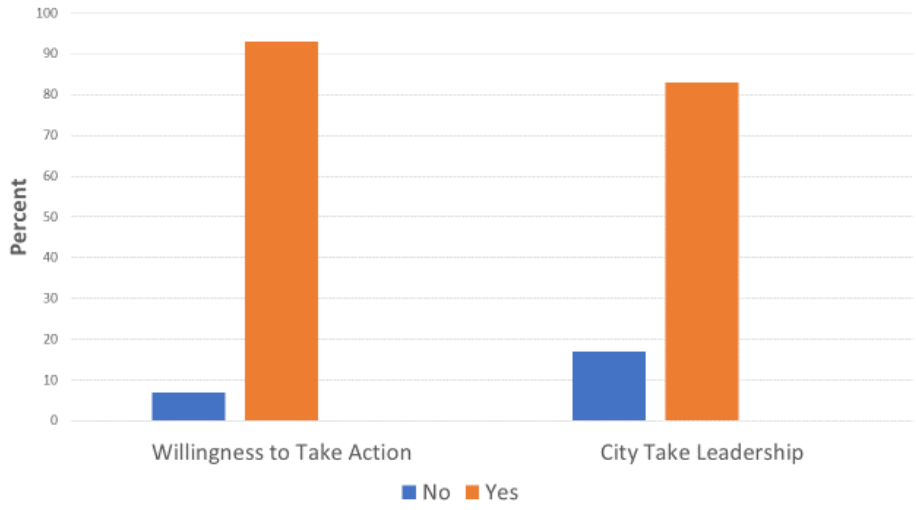

Over 70% of respondents were either extremely or very concerned about all the impacts described in the survey (Figure 1.7). Issues that ranked highest in terms of level of concern were increasing temperature, sea level rise, water quality and quantity, and wildfires and smoke.

**Figure 1.7 Concern about Climate Impacts**

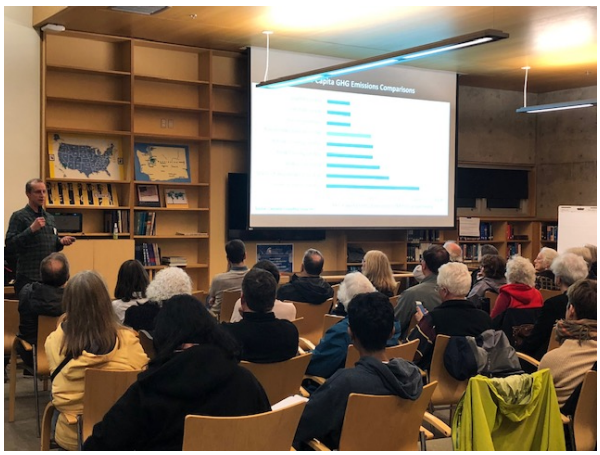



The vast majority of respondents are willing to take action on climate change and believe COBI should take a leadership role in addressing climate change (Figure 1.8).

**Figure 1.8 Taking Action on Climate Change**



In addition to the survey, the CCAC hosted two Community Workshops in 2019 (Saturday December 7th and Wednesday December 11th) with over 150 people in attendance. The purpose of the workshops was to provide participants with the opportunity to learn about the climate impacts to Bainbridge Island and provide input to the CAP.



Participants were provided with an introduction to the CCAC's objectives and the current state of knowledge about climate change impacts, focused on impacts to our region. Participants then broke out into hour-long working sessions to brainstorm ideas for each of the major sections of the CAP (e.g., energy, transportation, and buildings). CCAC members led each breakout group and a volunteer was assigned to each group to take notes. Ideas from each breakout group were compiled and written up into formalized notes and, as appropriate, the CCAC incorporated many of these ideas into the CAP.

## 1.5. Goals for Climate Action Plan

This plan provides the guidance needed for COBI to achieve three goals:

- Reduce Bainbridge Island's contribution to climate change by reducing our GHG emissions (mitigation).
- Increase our Island's resilience to climate change impacts (adaptation).
- Engage the community to make climate change actions equitable.

**BI Climate Action Plan Goals**

**Mitigation:** By 2045 Bainbridge Island will reduce its greenhouse gas emissions by 90% compared to 2014 levels with interim goals of reducing greenhouse gases by 25% by 2025 and 60% by 2035 compared to 2014 levels.

**Adaptation:** Bainbridge Island citizens are climate savvy and can withstand the impacts of climate change (e.g., sea level rise, warming temperatures, changing precipitation patterns, and changing vegetation).

**Community Engagement:** COBI inspires action across the community and partners with local and regional organizations to take meaningful and equitable climate change mitigation and adaptation actions.

## 1.6. Challenges with Addressing Climate Change on Bainbridge Island

**We Have a Complex Ecosystem**

Bainbridge Island is an ecologically diverse Island shaped by its pre-glacial, glacial and post-glacial history, as well as its more recent human influences. Overlaying climate change on these already complex systems is a challenge to the stewardship of the health of our natural resources and landscapes.

**The Majority of our Shoreline is Developed**
Bainbridge contains 53 miles of diverse shoreline with a wide variety of human uses, ecological functions, and ecosystem-wide processes. Approximately half of the shoreline of Bainbridge Island has some form of shoreline armoring, and the vast majority of the shoreline is developed to some extent for human use. Managing the shoreline for human use as well as ecological health is a challenge even without the added impacts of climate change, such as sea level rise, habitat loss, erosion, slope stability, risk to infrastructure, ocean acidification, and changes to the shoreline vegetative community.

**Water Resources will be Stressed**
Bainbridge has a complex array of surface water and groundwater resources that are sensitive to the impacts climate change will bring. Our small streams, many of which are seasonal, are likely to experience greater extremes in hydrology and runoff, with longer dry periods and higher stormwater flows. Species like salmonids that are already stressed by many local and regional factors will face additional challenges as more extreme conditions cause habitat loss and changes to the timing and return of flows in our small streams and wetlands.

Bainbridge Island is a sole source aquifer community, with the vast majority of its water coming from precipitation that falls on the Island's surface and infiltrates the ground. Human development has already substantially altered groundwater resources. Such development has changed the permeability of the ground and runoff patterns and resulted in groundwater from multiple Island aquifers being withdrawn in some cases at rates greater than those of replenishment.

Climate change will layer additional stressors on our groundwater resources. These stressors include, but are not limited to: increased runoff and decreased recharge due to more extreme precipitation events; dryer summer periods, which will particularly stress shallow groundwater sources; warmer temperatures, which will result in increased water demand; and sea level rise, which will increase the possibility of saltwater intrusion into our sea level aquifers.

**Forest Management is Complex**
Bainbridge Island's forests have a significant history of human modification. Harvesting for timber and shipbuilding resulted in much of the Island being deforested. This was followed by agricultural activities that cleared and plowed areas of land for decades, many of which have been reseeded or reclaimed by young forests. Bainbridge's forested lands are currently a patchwork of private and public ownership, including stewarded ownership by the City, the Bainbridge Island Parks District (BIPD), the Bainbridge Island Land Trust (BILT), and IslandWood.

Finding a clear path towards managing lands under such a wide variety of ownership is no small task, especially in the face of climate change impacts that include increased wildfire risk, risk of forest pathogens, and changes in forest community composition. Managing forest health will require significantly increased cooperation, stewardship, outreach and education to ensure that our vegetated communities continue to provide their essential ecological functions: a diverse

and healthy natural habitat; stormwater regulation; aquifer recharge; local climate moderation; and air quality, as well as aesthetic and recreational functions.

**Agricultural Lands will be Stressed**
The native Salish peoples and later immigrant arrivals had a long, rich tradition of harvest and agriculture on and around the Island, including harvesting camas, shellfish, salmon and other resources. The current agricultural landscape is a relatively small but diverse mosaic of public farmlands, private vineyards, pastures and farms, community pea patches and backyard gardens. Climate change can be expected to influence and challenge fundamental aspects of agricultural systems including water availability, growing seasons, invasive plants and pests, and soil health.

## 1.7 Organization of the CAP

The CAP builds on the Island's Comprehensive Plan, the Bainbridge Island Climate Impact Assessment[35] developed for the Comprehensive Plan (summarized above), a GHG emissions inventory (summarized in section 2)[36], and community input. This document is organized as follows:

Section 2 summarizes the results of the GHG emissions inventory conducted by Cascadia Consulting Group for COBI.

Sections 3 through 8 provide the specific goals, targets, strategies, and actions around six focus areas:

- Energy (Section 3).
- Transportation (Section 4).
- Buildings (Section 5).
- Natural Environment (Section 6).
- Waste (Section 7).
- Community Engagement (Section 8).

The following information is provided for each focus area:

- Goals and targets
- Challenges to meeting those goals and targets
- Current actions by COBI and the Community to achieve those goals
- Strategies, prioritized actions, and other actions COBI and the Community need to take to meet those goals
- For each prioritized actions the following is included in Appendix A:
    - Description
    - Milestones
    - Years when action will be initiated, completed, and implemented.

Section 9 provides a roadmap of needed actions for implementing the CAP. This final section details the steps COBI and the Community need to take to ensure successful CAP

implementation, which in turn will create a climate savvy Bainbridge Island. Section 10 provides a list of individual actions residents can take to reduce their GHG emissions and prepare for the impacts of climate change.

## 1.8. Prioritizing Actions and Identifying Immediate Actions

The CCAC decided that it was important to prioritize the recommended actions to facilitate the review of the CAP by COBI staff and the City Council. The CCAC identified each action as a high, medium, or low priority. Ranks were determined based on five criteria:

**1. Mitigation or adaptation**: Potential for the action to reduce GHG emissions (mitigation) and/or potential for the action to reduce vulnerability to effects of climate change (adaptation).
**2. Implementable:** The action is both technically and logistically feasible and has been implemented in other jurisdictions.
**3. Duration of benefits:** The length of time over which the benefits of the action will persist.
**4. Equity**: The action will contribute to or support social justice, equity, diversity and inclusion within our community.
**5. Co-benefits**: The action will produce co-benefits (e.g., air pollution reduction; economic opportunities; improved transit; preserve natural resources).

Each action was evaluated as having a high potential (5 points), medium potential (3 points) or low potential (0 or 1 point) for achieving the stated criteria. The points for each action were then totaled. These values were used to assist in determining the highest priority actions.

In addition, the CCAC recognized it was important to identify a smaller subset of immediate actions that can help jump start implementation and provide the biggest near-term reductions in GHG emissions (Table 1.2). Identifying this smaller subset of actions enables the CCAC to better support COBI as it starts to implement the CAP. In addition, it will provide a clear and transparent road map for our Community on what are the immediate steps we need to take to start reducing our GHG emissions. The timeframe for implementing these immediate actions is over the next 9-12 months.

**Table 1.2: Immediate Actions for Next 9-12 Months**

| Area | Action |
|---|---|
| **Implementation** | **5.A.1.b/6.A.1.c/7.D.1.a**: Use the EcoAdapt Climate Change Adaptation Certification Tool in COBI decision making. |
| | **9.B.1.a**: Equity implications are addressed in all actions |
| | **8.C.1.b/8.C.1.a**: Hire City staff to coordinate and lead climate efforts and review existing authorities. |
| | **9.D.1.a**: Develop cost estimates and staffing needs for priority actions. |
| **GHG Inventory** | **2.A.1.a**: Improve accuracy of GHG Inventory. |
| **Energy** | **3.A.1.b**: Work with PSE to reduce our energy demand. |
| | **3.B.1.a:** Work collaboratively with PSE, via the PSE Franchise, to green our energy supply. |
| | **3.B.1.c**: Prohibit propane, fuel oil, and wood stoves for primary heating in new buildings. |
| | **3.A.2.a**: Initiate discussions on establishing a Green Building and Energy Fund |
| **Transportation** | **4.A.1.a**: Support the recommendations from the Sustainable Transportation Task Force and ensure potential GHG emission reductions are considered in all options considered by Task Force. |
| | **4.B.1.a**. Transition COBI's fleets to primarily electric vehicles, use biofuels where not an option, and encourage other Bainbridge Island taxing districts to also develop a plan. |
| | **4.B.2.a**. Evaluate current code to see if a need to increase the number of EV-charge-ready for all new development/major renovations and multifamily units/commercial development include EV charging infrastructure. |
| **Buildings** | **5.A.1.a:** Support the recommendations from the Green Building Task Force. |
| | **5.B.1.a., b., and c**: Build on preliminary sea-level rise assessment endorsed by CCAC. |
| **Natural Environment** | **6.A.2.a**: Create list of tree and plant species expected to be favored by climate change that can be used for forest management and restoration actions. |
| **Waste** | **7.A.2.a**: Pass an ordinance to reduce single-use plastics. |
| **Community Engagement** | **8.A.1.a. and b**: Develop a web presence for climate change on City website and make climate information widely and easily available to all community members. |
| | **8.C.2.a:** Establish equitable access to recharging generators and cell phones during outages, and provide emergency food/water/filtered air during poor air quality due to fires across the west. |

# Section 2: GHG Inventory

## Section 2: Greenhouse Gas Emissions Inventory

One of the first steps in developing the CAP was to complete a comprehensive GHG emissions inventory.[37] The inventory described the amount of GHG emissions produced by the Bainbridge Island community and COBI operations in various sectors (e.g., transportation, energy, and waste). In addition, a consumption-based inventory was also developed to estimate GHG emissions from the goods and services we consume. As COBI and the community act to reduce GHG emissions, such inventories must be periodically updated to monitor progress and make improvements in the methodology along the way.

This section of the CAP summarizes the key findings of the initial GHG emissions inventory and outlines the CAP goals, targets, strategies and actions to monitor GHG emissions as the community works toward our stated reduction goals.

### 2.1. Inventory Approaches and Methodology

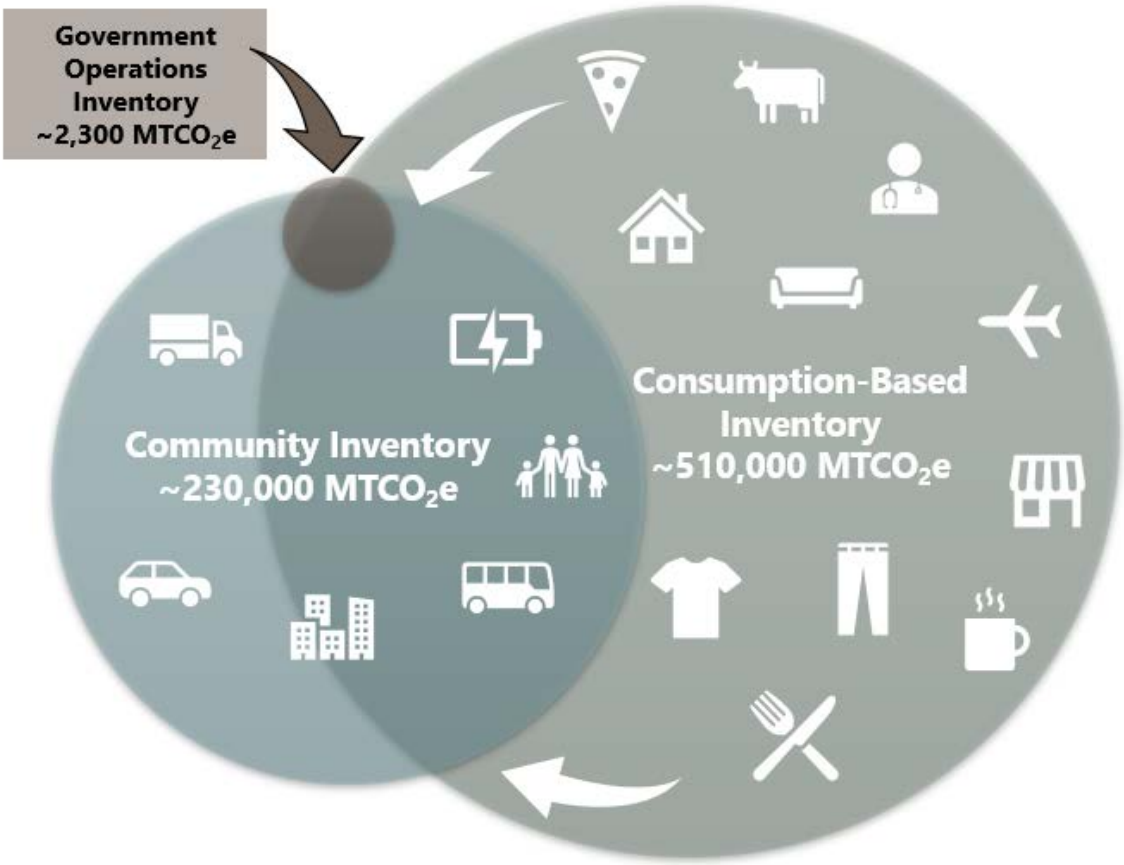
The final GHG emissions inventory report was issued October 2019. It evaluated the years 2014 and 2018. Cascadia Consulting Inc. developed three inventories for COBI (see Figure 2.1):

- A **community inventory** that estimated GHG emissions produced by the activities of the Bainbridge Island community, including residents and businesses.

- A **municipal inventory** that estimated the GHG emissions produced by COBI operations, including from the operation of municipal buildings and facilities, transportation, solid waste, wastewater, and refrigerant leakage.

- A **consumption-based inventory** that estimated GHG emissions associated with the consumption of food, goods, and services within the community, regardless of their origin. This includes emissions associated with the production of goods manufactured in other locations but consumed by Bainbridge Island residents, visitors, or businesses.

**Figure 2.1 Conceptual Relationship Among Community, Municipal and Consumption-Based Inventories for Bainbridge Island**




**Inventory Methodology**

The inventory accounts for human-caused emissions of the most prominent and typical greenhouse gases for communities: carbon dioxide ($CO_2$), methane ($CH_4$), and nitrous oxide ($N_2O$). To account for the differences in potency among these gases, all emissions are calculated and reported in units of metric tons of carbon dioxide equivalent ($MTCO_2e$). The inventories were conducted using widely accepted tools and protocols, including the *Local Government Operations Protocol* and *U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions.*[38]

GHG emissions are inventoried by multiplying annual activity data (e.g. electricity consumption) by emission factors (GHG emissions produced per kWh of electricity). Data was obtained from City staff and local documentation such as Puget Sound Energy's (PSE) billing records, records from local wastewater treatment facilities, and municipal fleet vehicle fuel use records.

For the community inventory, key data sources included electricity consumption from PSE, modeling outputs for vehicle miles traveled by fuel type from Puget Sound Regional Council

(PSRC) tonnage records from Bainbridge Disposal and estimates of agricultural landowners and acreage from the Kitsap County Conservation District. Where local data were not available, downscaled national data sources such as from the Federal Transit Administration, U.S. Census Bureau, and the U.S. Department of Agriculture were used.

The activities and sectors included in GHG emission inventories are often classified into three "scopes," which represent relative levels of control over an emissions source:

- **Scope 1** emission sources include those directly caused by an organization's actions, such as from owned equipment and facilities the organization owns.[39]

- **Scope 2** emissions are those indirectly associated with purchased electricity, steam, heating, or cooling.

- **Scope 3** includes all other indirect emissions that are not covered in Scope 2.

The community and municipal inventories for Bainbridge Island included emissions sources from all three scopes. The inventories included all sources required by the consulted protocols and additional sources, as relevant.

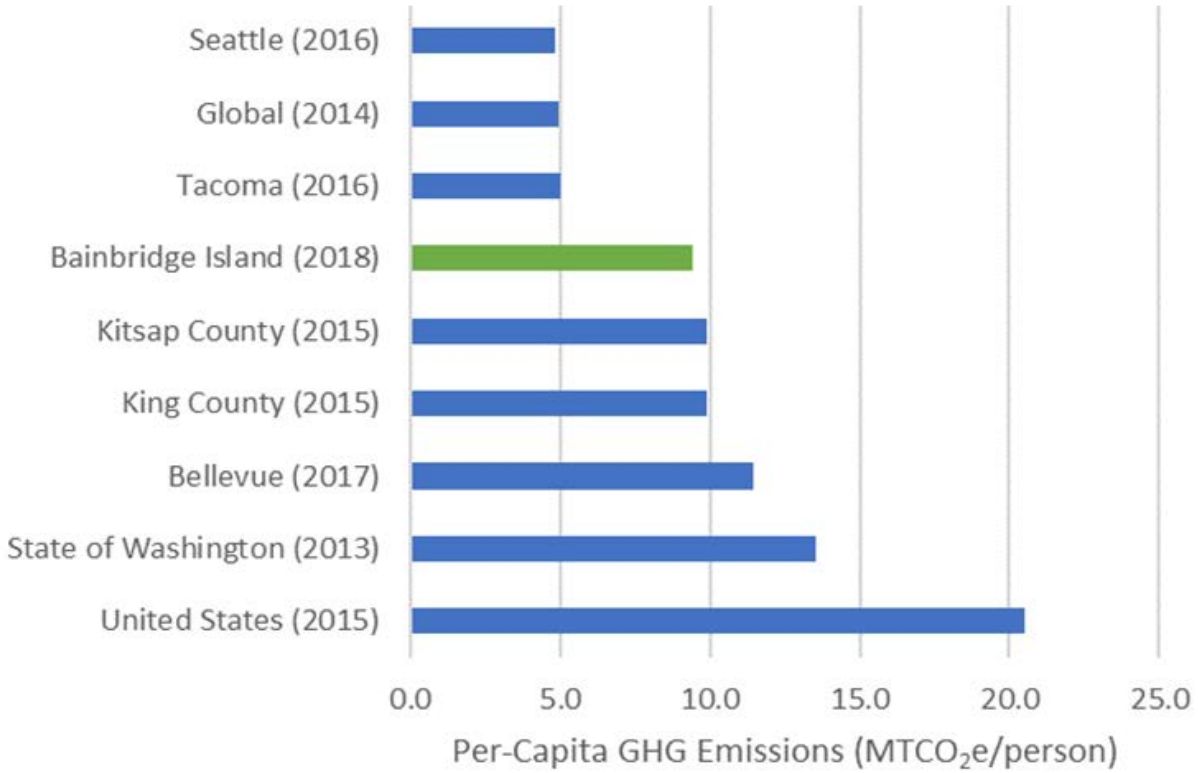
The inventories cover two representative years, **2014** and **2018**. 2018 was the most recent year with the most comprehensive, consistent, and relevant information on community GHG emissions. For a comparison year, 2014 had no major differences in organizational structure or infrastructure from 2018, and all the needed data was available and derived using methodologies consistent with 2018.

## 2.2. Inventory Results

**Community Emissions**

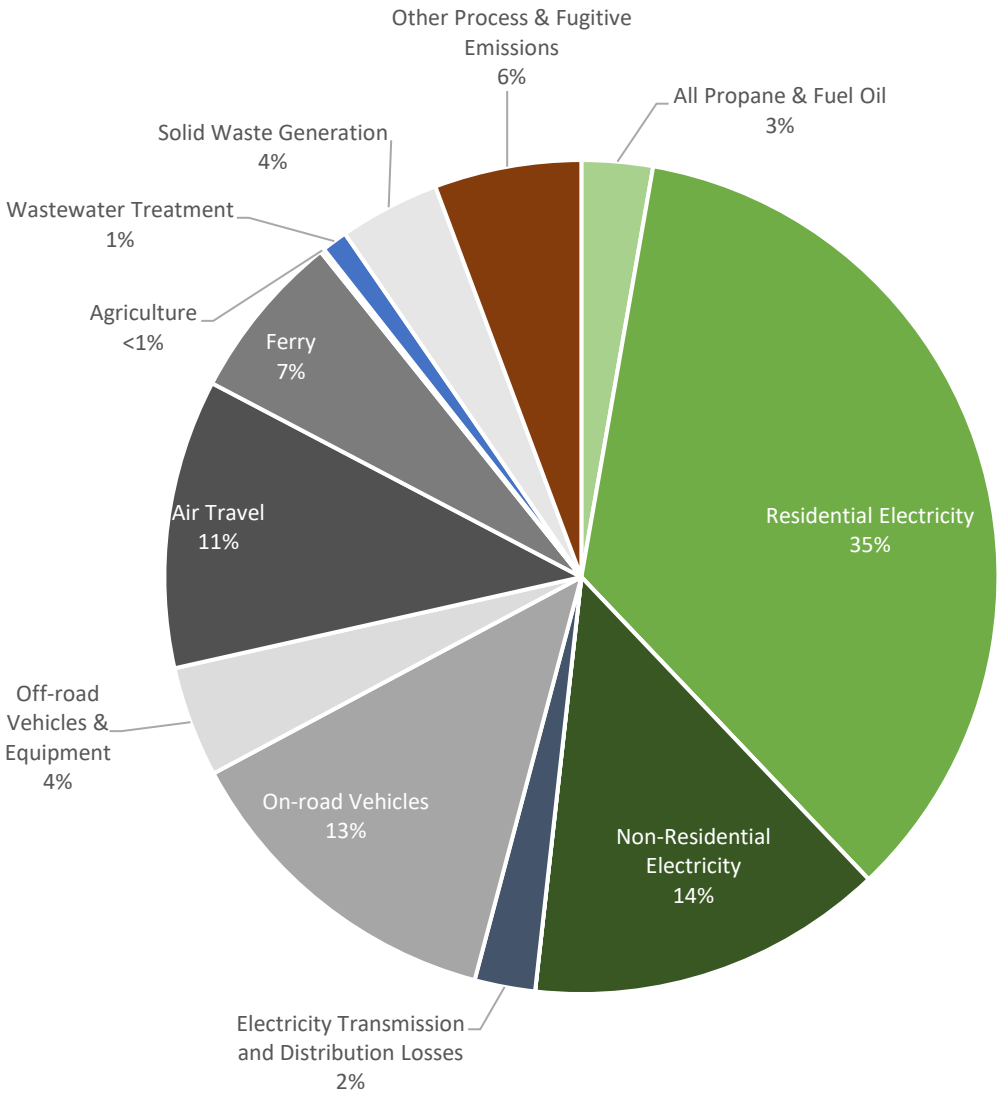
The Bainbridge Island community emitted about 214,425 $MTCO_2e$ in 2014 (9.3 $MTCO_2e$ per Bainbridge Island resident) and 233,998 $MTCO_2e$ in 2018 (9.4 $MTCO_2e$ per Bainbridge Island resident). A high-level comparison suggests that this per-capita estimate is consistent with that of Kitsap County (9.9 $MTCO_2e$ per person), and lower than per-capita estimates for the U.S., Washington State, King County, and Bellevue. However, Bainbridge Island's estimated per-capita emissions are almost twice those of Seattle and Tacoma (Figure 2.2) based on the Community-based inventory.

**Figure 2.2 Per Capita GHG Emissions Comparison [40]**



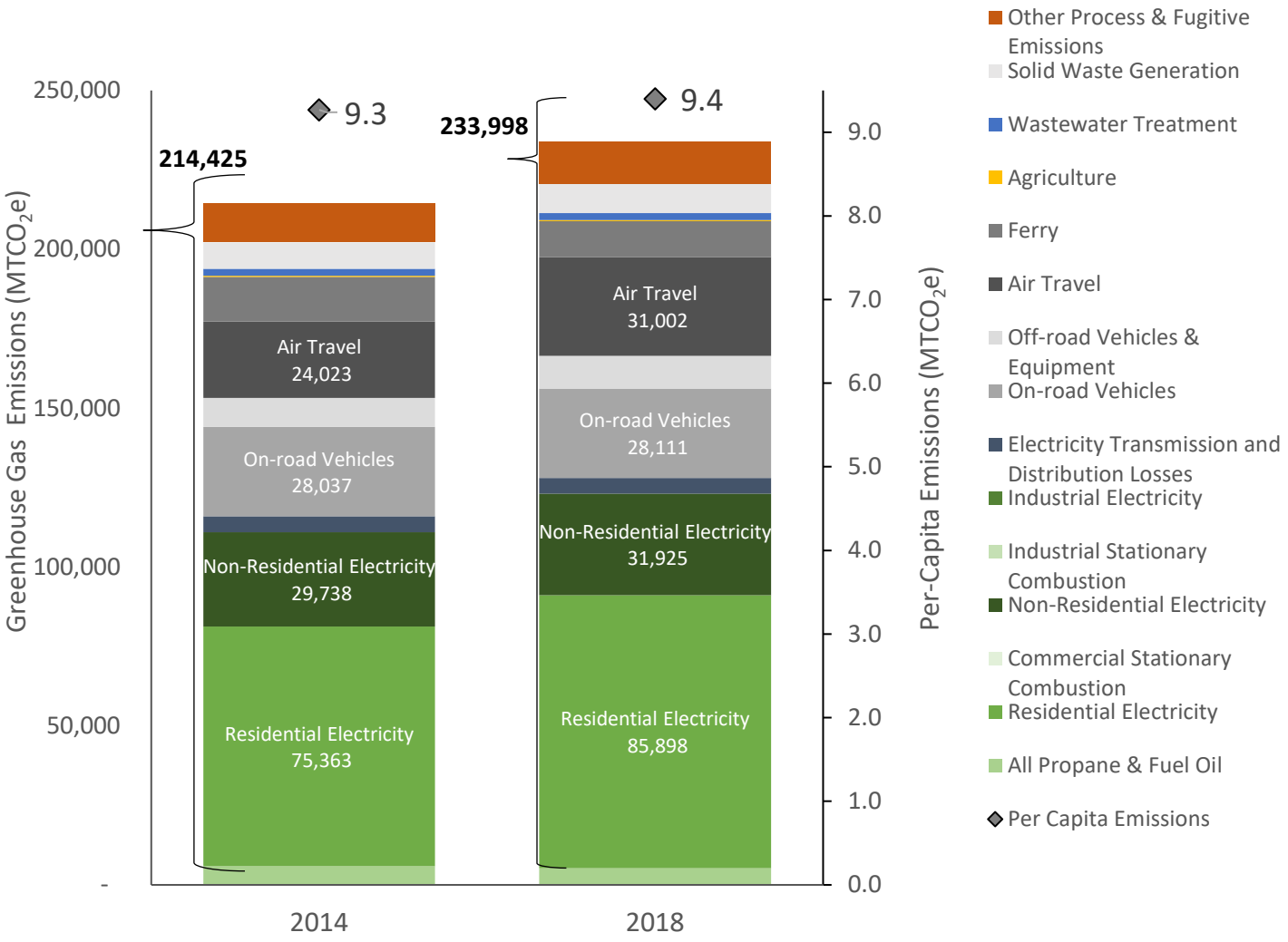

The majority of Bainbridge Island community emissions stems from consumption of electricity in homes and commercial buildings (about 53%). Transportation makes up another one-third (about 35%) and other sources like solid waste generation and refrigerant loss accounting for another 11% (Figure 2.3).

**Figure 2.3 Bainbridge Island Community Wide Emissions in 2014 (Total = 214,425 MTCO2e)**




Overall, communitywide emissions in 2018 increased by 9% since 2014 (Figure 2.4). The largest increases were from air travel (23% increase), residential electricity (12% increase), and non-residential electricity (7%). Per-capita emissions, however, only increased 1% over that period.

**Figure 2.4 Bainbridge Island Community Emission Trends by Year and Source**

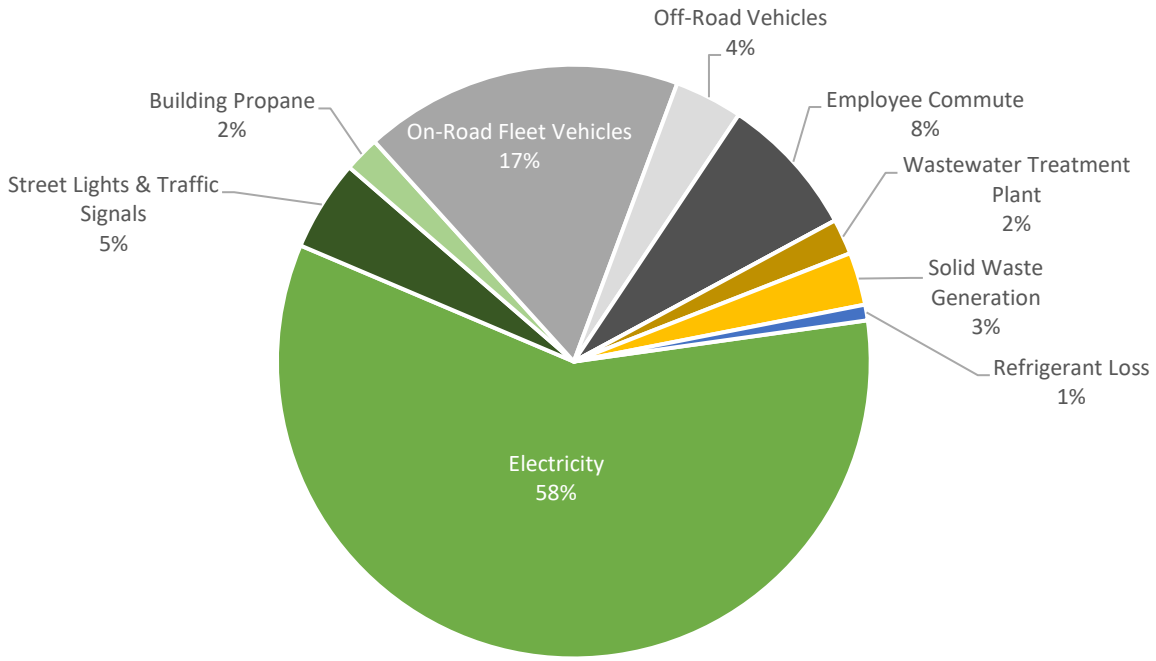



**City Government Emissions**

Emissions from COBI activities—which make up about 1% of the total community emissions—increased 11% from 2014 to 2018 (2067 to 2291 $MTCO_2e$). Major emissions sources included facility electricity consumption (60%) and on-road fleet vehicles (17%) (see Figure 2.5).

Emissions from municipal facility electricity and on-road fleet vehicles increased 14% and 7%, respectively. Just four facilities accounted for 80% of all facility electricity use in 2018: Bainbridge Island Wastewater Treatment Plant (WWTP), City Hall, Fletcher Bay Well Field, and Bainbridge Island Public Works Operations and Maintenance Yard.

**Figure 2.5 Bainbridge Island City Operations GHG Emissions in 2014 (Total = 2.067 MTCO2e)**

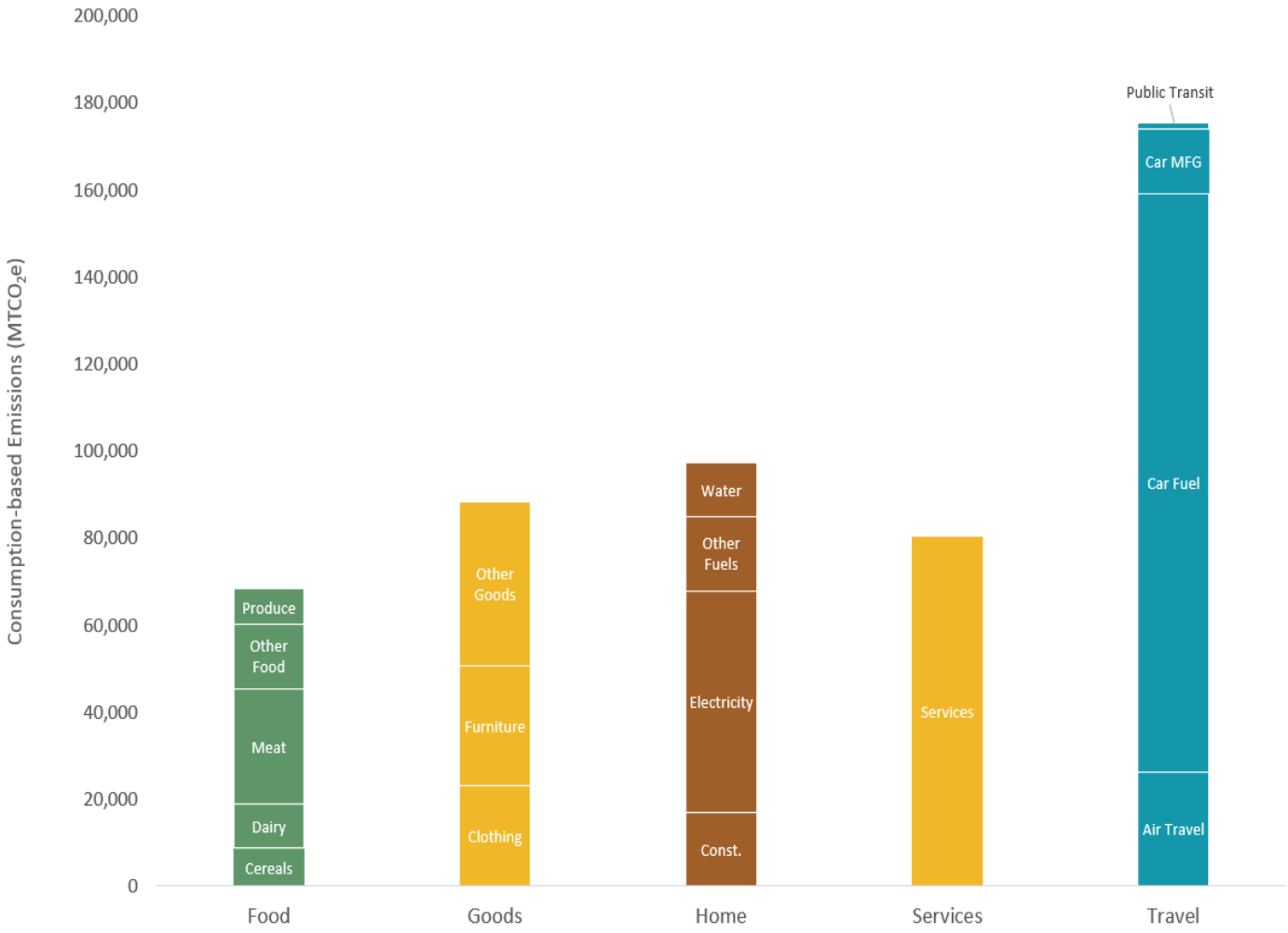



**Consumption-based Emissions**

The purchasing decisions we make impact the environment. Some types of foods and materials, such as meat and furniture, can carry a significant GHG emissions burden. For example, meat and dairy cows emit methane—a potent GHG. Residents on Bainbridge Island who consume beef contribute to the emissions from these cows—even if the cows are raised outside the Island.

Results from a household-based economic modeling tool suggest that purchasing behaviors of the average Bainbridge Island household contributes 52 $MTCO_2e$ a year (see Figure 2.6).[41] There were an estimated 9,404 and 9,798 households on Bainbridge Island in 2014 and 2018, respectively, indicating that total consumption-based emissions from all households on Bainbridge Island could have reached approximately 510,000 $MTCO_2e$ in 2018. Major drivers include the purchase of meat, furniture, clothing, home energy, and travel-related expenses such as car fuel and air travel.

**Figure 2.6 Consumption-Based Emissions per Bainbridge Island Household**




## 2.3. GHG Inventory Conclusions

The GHG emissions inventory provides an informative starting point for the community's current GHG emissions status. Key findings are:

1. More than half of the community GHG emissions are from fossil fuel emissions by the Island's sole energy provider, PSE. The contribution from electrical generation will decline in the future in line with the requirements of the Washington State Clean Energy Transformation Act (CETA) targets (see Section 1), although there are actions the City can take to support and even accelerate this transition (See Section 3 and Section 5).

2. On-road motor vehicle transportation and air travel together accounted for another 24% of community emissions. Reducing air travel and motor vehicle emissions will require both actions at the state level and private citizen action. The air travel and motor vehicle transportation sectors analysis relied on regional models. Future inventories will need to take into account locally tracked data, if possible.

3. Emissions from ferry travel (7%) should be reduced in the future because all of the Bainbridge ferries are scheduled to transition from diesel to hybrid-electric propulsion by 2022.

4. The contributions from hydrofluorocarbons (~6%) will be reduced as the State of Washington phases out their use over the next several years.

5. The report indicates that community emissions increased 9% from 2014 to 2018 while per-capita emissions increased only 1%.

The initial GHG emissions inventory provides the basis for an **informed foundation** for taking climate action. The inventory identifies the sectors at both community and municipal operation scales that contribute the largest relative amounts of GHG emissions. Regular inventories will continue to be needed and incorporate into future decision-making. This will be critical for evaluating progress toward emissions reductions targets and for identifying cost-saving opportunities.

## 2.4. Goals/Targets

**A. Implement a GHG emission tracking plan to monitor the CAP GHG emissions reduction goals.**

- By 2021, select software (e.g., ICLEI Clear Path) that can be used to obtain community-wide data for the next GHG emissions inventory.
- By 2022, complete a new GHG emissions inventory, followed by an inventory in 2026 and every 5 years thereafter.

**B. Re-evaluate the forest sequestration analysis.**

- By 2023, complete a new forest sequestration analysis for the Island and prepare a plan to reanalyze the forest sequestration analysis periodically.

## 2.5. Challenges

- **Community Engagement**: Sufficient community engagement is needed to provide statistically reliable GHG emissions inventory results.
- **City Training:** The City received some training from Cascadia to continue inventories using the same methods in the GHG emissions inventory. Additional training is needed.
- **Conducting Valid Surveys:** Conducting voluntary community-wide surveys is challenging to avoid selection biases and to get a statistically valid sampling of participants.
- **Developing Metrics:** Measuring the reduction in GHG emissions from a specific action is challenging as the data many times are not available. One option may be to fine tune the Clear Path tool used in the original inventory. This is important to getting accurate metrics for CAP action responses among the resident behavior.

## 2.6. Current Actions

- **Carbon Footprint Calculators:** Several groups are using different software to calculate their organizations carbon footprint such as *Taming Bigfoot*[42]*, CoolClimate*[43] *and Energy Star.*[44]
- **Bainbridge High School**: CCAC members are working with Eagle Harbor High School to develop curriculum that will enable students to conduct individual/district GHG inventories.

## 2.7. Strategies/Actions

**Goal A: Implement a GHG emission tracking plan to monitor the CAP GHG emissions reduction goals**

**Strategy A.1.** Refine the software tool used for the 2019 GHG emissions Inventory (i.e., Clearpath).[45]

Priority Action(s)

- 2.A.1.a COBI will work with the CCAC to improve the accuracy and site-specificity of data for GHG emission categories that are currently based on regional models (particularly vehicles and air travel).

Other Action(s):

- 2. A.1.b. COBI will work with the CCAC to customize the tool as needed to distinguish electric vehicle (EV) from gasoline/diesel-powered motor vehicle use and other criteria.
- 2.A.1.c COBI will work with the CCAC to develop a protocol for measuring uncertainty.
- 2.A.2.d. COBI will work with the CCAC to conduct validation and verification assessments of any future updates to regional consumption-based models.

**Strategy A.2.** Complete updates to the GHG inventory.

Priority Action(s)

- 2.A.2.a. COBI will complete the next GHG emissions inventory by 2022 for the year 2021. Complete the next GHG emissions inventory by 2026 for the year 2025 and then complete a GHG emissions inventory every 5 years thereafter.

**Goal B: Re-evaluate the forest sequestration analysis**

**Strategy B.1**. Explore more rigorous analysis methods, including ground-truthing tree inventories and soil sequestration analysis.

Priority Action(s)

- 2.B.1.a. COBI, working with the CCAC, will approach academic institutions for assistance to plan more rigorous analysis methods, including ground-truthing of tree inventories.

Collaborations may include student apprenticeships, student thesis research opportunities, or collaborative research grant proposals. Consider also joint studies with BILT.

Other Action(s)

- 2.B.1.b. COBI, working with the CCAC and academic and local environmental and agricultural organizations, will explore expanding the forest sequestration analysis to include carbon sequestration from agricultural lands, shorelines, open meadows and parks.

## 2.8. Reductions Needed to Meet 2045 Reduction Goals

As discussed in Section 1, the CAP establishes a mitigation goal of reducing GHG emissions by 90% by 2045 compared to 2014 levels, with interim goals of 25% by 2025 and 60% by 2035 compared to 2014 GHG emission levels.

Figure 2.7 shows the GHG emission reductions needed in order to meet those targets. The figure provides a linear trend in GHG emissions of 9% per year. This is what the increase in GHG emissions were from 2014 to 2018. As can be seen, there will need to be substantial decreases in GHG emissions to meet our interim targets in 2025 and 2035 and our final targets in 2045.

**Figure 2.7 Reductions in GHG Emissions Needed to Meet Targets**

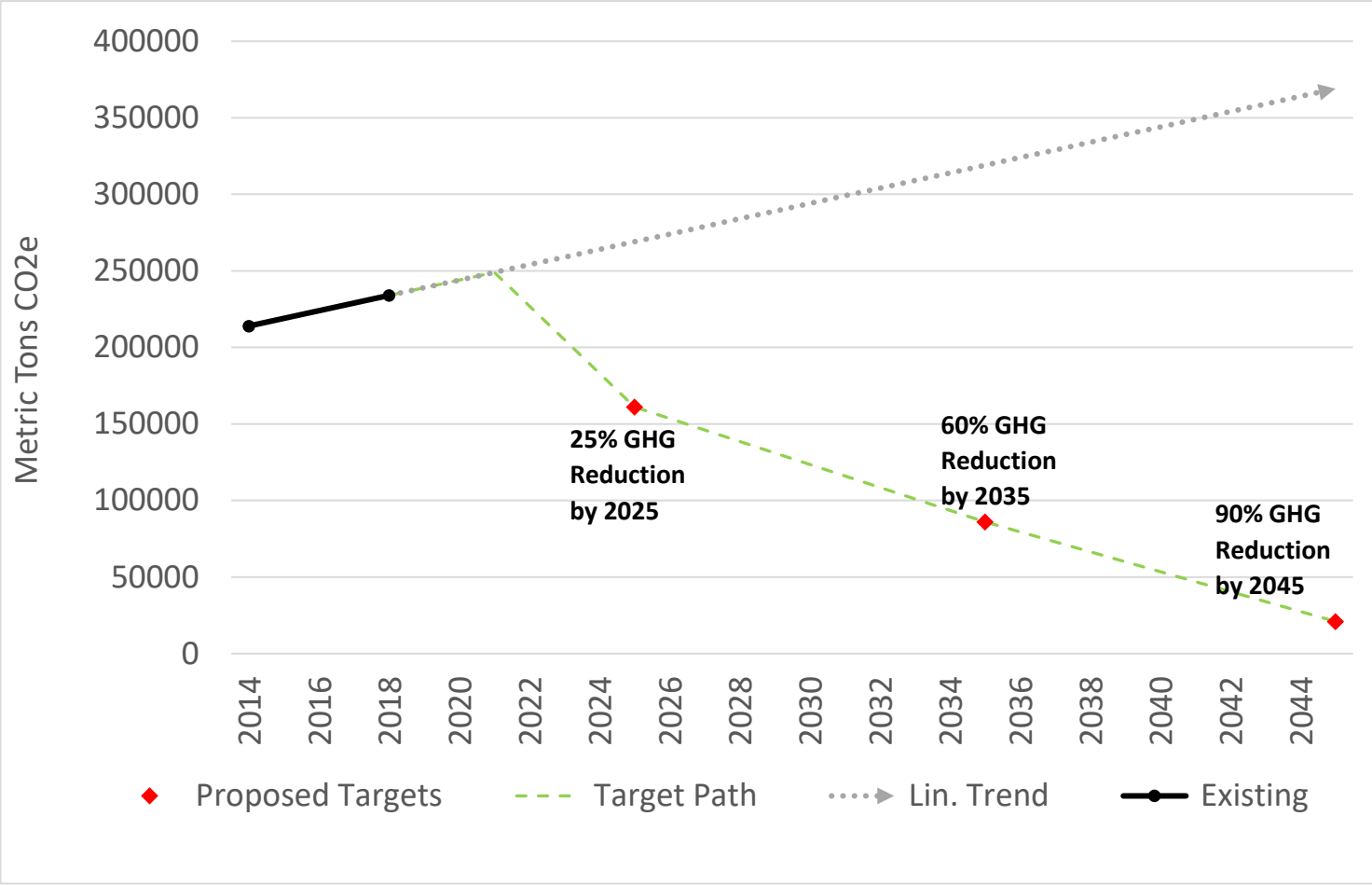


Figure 2.8 illustrates the potential reductions in GHG emissions from different areas of action. There are four areas where reductions will take place as described below. For each of these areas, the CCAC used the best available information and also made some best professional judgements on what might occur in the future.

In Figure 2.8, the value of the bar indicates the percent reduction associated with a particular action area. For example, State policies are estimated to reduce emissions from a 2014 baseline of approximately 214 MtCO2e to approximately 89 MtCO2e when fully implemented by 2045 (59% GHG reduction from 2014 levels). Recommended CAP-identified actions could bring us down to 55 MtCO2e if fully implemented (an additional 16% or 75 total GHG reduction). Finally, partnerships and other actions could take us down to about 21 MtCO2e or 90% total GHG reduction by 2045 from 2014 levels.

**State Actions**

In 2019, the Washington State legislature passed the Clean Energy Transformation Act (CETA)[46] requiring the State's electrical supply to be free of coal by 2025, carbon neutral[47] by 2030 and 100% carbon-free by 2045. They also passed legislation that requires the phase-out of hydrofluorocarbons.[48] In addition, the ferries from Bainbridge Island to Seattle will be able to run on 100% electric power as of 2022. These actions will contribute about 59% of the 90% GHG reductions needed to meet the 2045 mitigation goals.

**Bainbridge Island Climate Actions**

These actions are related to specific actions (e.g., prohibiting propane as a primary heating source in new developments; adopting a green building code; implementing recommendations from Sustainable Transportation Task Force; reducing vehicle miles traveled, and reduce amount of waste landfilled). These actions will contribute about another 16% of GHG reductions.

In total, State and local actions will contribute about 75% of the 90% of GHG reductions needed to meet the 2045 mitigation goals.

**Partnerships, Incentives, and Individual Actions**

About 15% of GHG reductions will come from community and individual actions such as: installing community solar projects; buying electric cars, bikes, and buses; and reducing the amount of air travel.

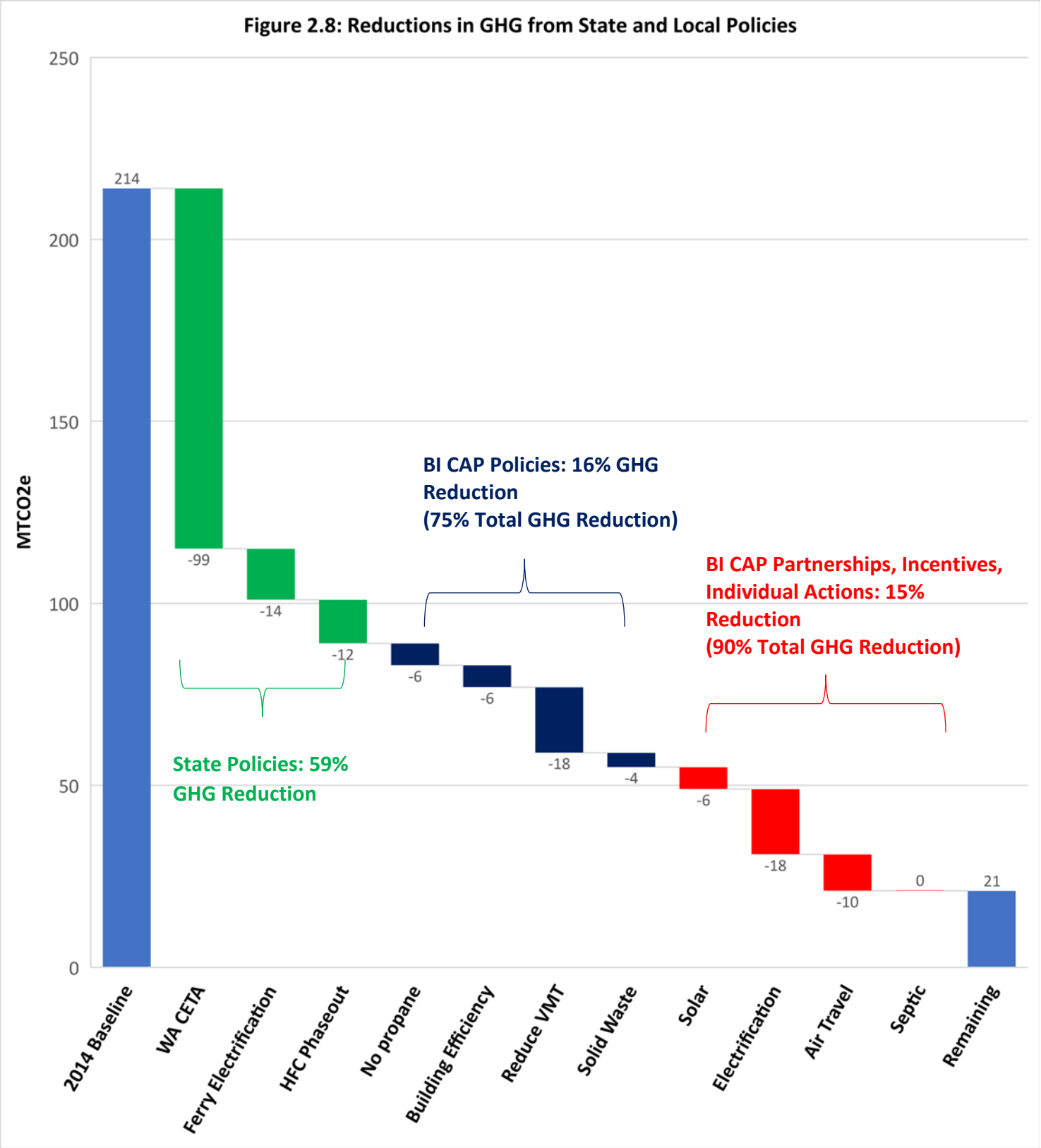


Figure 2.8: Reductions in GHG from State and Local Policies
MTCO2e
250
200
150
100
50
0
214
-99
-14
-12
-6
-6
-18
-4
-6
-18
-10
0
21
BI CAP Policies: 16% GHG Reduction
(75% Total GHG Reduction)
BI CAP Partnerships, Incentives, Individual Actions: 15% Reduction
(90% Total GHG Reduction)
State Policies: 59% GHG Reduction
2014 Baseline
WA CETA
Ferry Electrification
HFC Phaseout
No propane
Building Efficiency
Reduce VMT
Solid Waste
Solar
Electrification
Air Travel
Septic
Remaining

# Section 3: Energy

## Section 3: Energy

Energy use is the largest source of Community emissions on Bainbridge Island. The GHG emissions inventory for Bainbridge Island indicates that about 53% of the community's GHG emissions come from electricity generation. In Washington State electricity generation contributes about 20% of the State's greenhouse gases.[49] Bainbridge Island's GHG emissions from electricity generation are higher than the State average because PSE, the Island's electricity provider has an energy mix containing over 56% fossil fuels.[50]

The Washington State legislature passed a bill in the 2019 legislative session[51] requiring the State's electrical supply to be free of coal by 2025, carbon neutral[52] by 2030 and 100% carbon-free by 2045.

Across the U.S., over 90 cities, more than ten counties and two states have adopted 100% clean energy goals. Six cities in the U.S.--Aspen, Colorado; Burlington, Vermont; Georgetown, Texas; Greensburg, Kansas; Rock Port, Missouri; and Kodiak Island, Alaska--have already hit their targets.[53]

Bainbridge Island should strive to achieve 100% clean, renewable energy, and should evaluate timelines to achieve this goal sooner than 2045 in order to do our part to keep global temperatures below 1.5 degrees Celsius compared to pre-industrial levels.

**BI Comprehensive Plan: Energy**

Goal CF-4: Public facilities constructed on BI meet appropriate safety, construction, energy conservation, durability and sustainability standards.
CF 4.4: Require public facilities to incorporate energy generation when and where possible.
EN 10.9: Maintain and improve Island air quality, by promoting the development of carbon free infrastructure.
EN 12.6: Promote energy conservation measures by all government entities.
EN12.7: Promote the installation of residential solar panels and the adoption of other energy saving technologies such as LED lights, heat pumps, and insulation.
U.14.1: Develop a plan together with the electric service providers to undertake energy efficiency improvements and other alterations of electric utility facilities to provide capacity for future growth.
U14.5: Encourage the electric service providers and electricity users to use carbon neutral electricity generation, local electricity generation and innovative technologies such as solar power.
U14.7: New taxpayer-funded buildings shall use carbon-neutral energy for heating, cooling and operational use.
U14.9: Explore ways to obtain 100% green electricity including investing in new renewable energy projects.

### 3.1. Goals/Targets

**A. Increase energy conservation and efficiency throughout the planned and existing built environment, including customer-owned generation.**

- By 2022, COBI will have established a Green Energy and Building Fund to assist with conversions and efficiency upgrades for homes, with a focus on low-income housing.

**B. Eliminate carbon-based energy sources from all energy sectors**.

- By 2022, COBI adopts policies that prohibit propane, fuel oil, and wood stoves as the primary source of heating in all new residential, commercial, industrial, and municipal buildings.
- By 2040, all of Bainbridge Island's sources of electricity are carbon-free.

**C. Create energy self-sufficiency for emergency preparedness and increase energy infrastructure reliability and resilience in light of the changing climate.**

- By 2023, half of the Bainbridge Prepares disaster hubs have installed 6-20kW solar arrays and storage for resilience.

## 3.2. Challenges

- **Energy efficiency of existing building stock is unknown**: While many buildings around the Island are energy-efficient (e.g., Grow Community and individually green-built homes) the overall energy efficiency of the Island building stock is unknown.
- **Lack of understanding of non-electric fuel sources**: Although the primary form of energy use on Bainbridge Island is electricity, there are an unknown but likely substantial number of other sources used for heating homes and powering appliances including: wood-burning stoves; propane generators, furnaces, fireplaces and appliances; and fuel oil in older units.
- **Emergency preparedness**: Bainbridge Island is susceptible to significant weather and natural disasters such as flooding in some areas as a result of climate change. The emergency preparedness and infrastructure resilience of the Island needs significant additional investment and coordination.

## 3.3. Current Actions

- **City Hall's community solar system:** City Hall has a system that generates more than 71 kilowatts of energy with a solar system composed of 297 panels. This is the largest solar system on the Island. The City Hall system had investments from 25 local Islanders totaling $450,000. COBI will plan to operate, maintain, and expand through 2045.
- **Energy Efficiency improvements**: Recent energy efficiency improvements were made to the Wastewater Treatment Plant (WWTP) operations.[54]
- **PSE Franchises Agreement:** COBI's current franchise with PSE took effect on April 23, 2007, and will expire on April 23, 2022, unless extended. The work to renew an electric utility franchise agreement is typically a multi-year effort that incorporates legal requirements, economic aspects, and community priorities. Prior to the pandemic, COBI workplans anticipated that tasks related to this negotiation would begin in Q1-2020 and continue throughout 2020 and into 2021 as needed.
- **Community PSE's Green Power program:** PSE's voluntary renewable electric energy programs include: Solar Choice, Green Power, and Customer Connected Solar.[55]
- **Solar at Sakai:** The Solar for Sakai school project, installed in 2009, has 30-solar panels with a 5.1-kilowatt array.
- **Green buildings**: There are several buildings on the Island that were constructed using a Green Building Certification Program (e.g., Living Building Challenge or Leadership in Energy and Environmental Design (LEED)[56]) such as the Grow Community, Ericksen Urban Cottages, Heron Hall, Bainbridge Artisan Resource Network (BARN), and Bainbridge Island Museum of Art (BIMA).
- **PSE biodigester pilot project**: A biodigester pilot project was started with the Harbor Public House (the Pub) and PSE as a proof of concept.

- **PSE proposals for improving reliability**: PSE's proposal to increase reliability by undergrounding overhead lines in risk corridors[57] and by a proposed tripling of: a) new transmission infrastructure (including a link between the Murden Cove and Winslow substations); b) a new 3.3-megawatt (MW) battery energy storage system; and c) targeted conservation, demand response tools, and customer-owned generation.[58].

## 3.4. Strategies/Actions

**Goal A. Increase energy conservation and efficiency throughout the planned and existing built environment, including customer-owned generation.**

**Strategy A.1**. Promote energy efficiency through existing and potential newly funded City and PSE programs.

Priority Action(s)

- 3.A.1.a. All COBI projects (e.g., Police Station, WWTP improvements) adopt requirements to maximize energy efficiency and reduce total energy demand whenever feasible (e.g., variable frequency drives in HVAC systems, heat recovery systems, and dedicated outdoor air systems).
- 3.A.1.b Work with PSE to: 1) raise awareness about existing rebate and assistance programs that will increase access to energy conservation and efficiency programs, focusing on low-income households and nonprofit organizations;[59] and 2) explore creating new incentive/rebate programs.

Other Actions

- 3.A.1.c. Encourage, and assist when possible, other taxing entities (e.g., BISD, BIMPRD, and BIFP) to adopt requirements to use high-performance retrofit technologies in all their projects.

**Strategy A.2.** Establish a Green Energy and Building Fund.

Priority Action(s)

- 3.A.2.a. Establish and use the Green Energy and Building Fund to provide incentives to building owners and residents to increase electrification conversions and battery storage and to assist in energy audits for residential home projects, including affordable housing (e.g., install energy conservation measures, provide financial incentives for existing building owners to transition from propane, fuel oil, and wood stoves to all electric buildings). Possible funding sources are included in end note.[60]

Other Action(s)

- 3.A.2.b. Identify and apply for grants and subsidies for energy efficiency improvements for low-income residents to address equity concerns.

**Goal B. Eliminate carbon-based energy sources from all energy sectors.**

**Strategy B.1**. Partner with energy providers and local businesses on programs that will reduce carbon-based energy sources.

Priority Action(s)

- 3.B.1.a. Work collaboratively with PSE, via the PSE Franchise agreement update and other mechanisms, to move towards a 100% carbon-free electrical supply, preferably sooner than the Washington State mandated goals.
- 3.B.1.b. Work with PSE and others to develop incentive programs to increase installation of renewable energy, wind, and passive photovoltaic (PV) solar or other technologies on new and existing buildings.[61]
- 3.B.1.c. Adopt a policy that prohibits propane, fuel oil, and wood stoves as the primary energy source for all new municipal, commercial, industrial, and residential buildings and in renovations and additions over a certain size.
- 3.B.1.d Develop incentives for existing commercial, industrial, and residential buildings to replace propane, fuel oil, and wood stoves as their primary heating sources.

Other Action(s)

- 3.B.1.e. Explore opportunities to work with PSE and local banks/credit unions to create local renewable energy projects, such as community solar, urban wind power, and other forms of generation and storage.

**Strategy B.2**. Partner with neighboring communities (e.g., Puget Sound area in general with focus on Kitsap County and unincorporated areas in Kitsap County) on programs that will reduce GHG emissions.

Priority Action(s)

- 3.B.2.a. Develop and hold trainings/workshops for Island and neighboring communities' builders, contractors, architects and homeowners that can help Bainbridge Island and neighboring communities to implement the fuel-switch from carbon-based to electrification of the building stock.

Other Action(s)

- 3.B.2.b. Collaborate with neighboring communities to learn from each other on programs to reduce GHG emissions.

**Goal C. Create energy self-sufficiency for emergency preparedness and increase energy infrastructure reliability and resilience in light of changing climate.**

**Strategy C.1**. Create microgrids for critical infrastructure throughout the community.[62]

Priority Action(s)

- 3.C.1.a. Work with PSE to develop a local program to encourage homeowners, businesses, and other entities like BISD, BIMPRD, and BIFP to acquire customer-owned generation like roof-top solar and small wind turbines as well as customer-owned storage.
- 3.C.1.b. Research and develop microgrids for community disaster hubs (City Hall, Seniors Center, Bainbridge Island School District (BISD), Island Wood) in partnership with PSE and Bainbridge Prepares and possibly using Washington Clean Energy Fund (CEF) funding.[63][64] See also Section 8 Community Engagement Action 8.C.2.a.

**Strategy C.2.** Create large-scale neighborhood microgrids with distributed energy resources.

Priority Action(s)

- 3.C.2.a. Work with partners (e.g., PSE) to determine the feasibility of developing large-scale neighborhood microgrids with customer-based storage or utility-scale storage, or a combined heat and power biodigester sited adjacent to the community pool.

# Section 4: Transportation

## Section 4: Transportation

On- and off-road vehicles, ferries, and air travel account for 35% of Bainbridge Island's GHG emissions. Motorized vehicles also contribute to localized air pollution and can impact public and environmental health and safety. Increasing the use of alternative modes of transportation, including walking, biking, and public transit, can help alleviate these impacts.

Greater use of electric vehicles can reduce local pollution along with overall GHG emissions, especially as our grid moves toward cleaner energy sources. Greater housing density when sustainably located, together with greater availability of electric vehicle (EV) charging and public transit infrastructure, could facilitate all of these shifts towards a more sustainable community. Finally, COBI may be able to facilitate adoption of infrastructure to help electrify ferry travel, and take steps to educate the community about the impacts of air travel.

**BI Comprehensive Plan: Transportation**

EN 12.2: Facilitate the improvement and convenience of low carbon mass transit and increased carsharing, cycling, walking and the development of alternative vehicle infrastructure (e.g., charging stations) to reduce greenhouse gas emissions.
TR 3.4: Support WSF and other providers to create and incorporate best practices into ferry service that reduce greenhouse gas emissions and vulnerability of ferry transit from climate change.
TR 7.2: Develop a master plan for the SR 305 corridor as a green and scenic highway balancing the objectives of maintaining it character, and providing safe visibility. Incorporate best practices into highway improvements that reduce greenhouse gas emissions and transit vulnerabilities from climate change.
TR 12.2: Develop transportation plans and programs that reduce travel demand, improve traffic flow and consider the impact to air quality including reducing greenhouse gas emissions.

### 4.1. Goals/Targets

**A. Reduce motorized[65] vehicle miles traveled (VMT)[66] per capita**

- By 2030, reduce VMT per capita by 25% (currently 3,000 VMT/capita), and by 50% by 2045. To support this goal, at a minimum:
    - By 2030, increase the mode share[67] of active transportation (biking and walking) to 25%, and to 50% by 2045.
    - By 2030, increase the mode share of public transit[68] to 5% (currently 2%) and to 10% by 2045.

**B. Reduce GHG emissions from motorized transportation, including through electrification of all modes (on-road, off-road, and ferries) and encourage reduction of air travel**.

- By 2025, transition COBI's fleet to 75% electric vehicles and the remainder to biofuels.
- By 2045, 80% of registered vehicles on Bainbridge Island will be either electric vehicles or plug-in hybrid electric vehicles.

## 4.2. Challenges

- **Barriers to increasing cycling and walking:** Experience in other communities and countries shows that safe, convenient and attractive networks of cycling and walking pathways for all ages and abilities – well-linked from residential areas to employment, school, and shopping – are required to significantly increase biking and walking. Such networks must include separated or protected bike lanes. Bainbridge Island currently lacks such networks and currently has an assortment of disconnected off road trails in need of enhancement and connections. Much of the Island's transportation infrastructure is designed around automobile travel (e.g., roads with no shoulders or sidewalks, free and abundant parking), which further discourages cycling and walking.
- **Historical development patterns:** Walking and bicycling are easiest within compact, mixed-use neighborhoods that actively accommodate these modes through well-designed roads, trails, and other pedestrian- and cycling-specific infrastructure. This mode of development may conflict in some cases with residents' preferences and with extant infrastructure. Outside of core areas, the majority of Island residences are spread out and separate from commercial destinations, which presents barriers to walking and biking to accomplish many activities.
- **Constraints to using public transit:** A combination of physical, cost, and behavioral barriers can inhibit the availability and use of public transit. Increased service, along with transit-oriented development, which might include increased housing density in Winslow and the three service areas could help overcome these barriers.
- **Barriers to electric modes of transport:** Although electric vehicles are increasingly popular, there are still cost, physical and psychological barriers to widespread adoption. Providing adequate public charging infrastructure, along with greater education and outreach, can help reduce these barriers. Alternative transportation modes – like e-bikes and scooters – can be promoted through measures to encourage non-motorized travel.
- **Island geography:** Bainbridge Island has lower average vehicle-miles traveled per capita than other communities in Washington and the rest of the country. This could be simply because we have fewer road miles to drive on (e.g., compared to Seattle), and the vast majority of trips on the Island are under 5 miles. It likely also reflects the fact that a greater share of resident vehicle-miles occurs outside community boundaries (e.g., shopping trips and other engagements that are off Island). Thus, a significant component of travel emissions from Island residents may be occurring in other jurisdictions, which makes it harder for the community to influence them.

**Related Targets from Other Locations**

Vehicle Miles Traveled (VMT)

- Washington State: Reduce VMT by 30% by 2035 and 50% by 2050.
- Los Angeles, CA: Reduce VMT by at least 13% by 2025; 39% by 2035; and 45% by 2050.
- Minneapolis, MN: Reduce motorized VMT by 40% by 2040

Mode Share

- Vancouver BC: Their goal of 50% of trips by motor vehicle by 2020 was reached ahead of schedule. Current goal is 33% of all trips by motor vehicle by 2040.
- Portland, OR: In 2008, 66% of trips were drive alone. By 2030, aim to achieve 30% of trips be drive alone.
- Orlando, FL: Goal is to achieve less than 50% of trips by motor vehicle by 2040.

- **Air travel emissions:** The GHG emissions inventory indicated that air travel constitutes 13% of our GHG emissions. Actions to address air travel emissions are generally beyond the reach of any individual municipal government. However, there are actions COBI can take to help reduce air travel by Bainbridge Island residents and COBI employees. COBI can work with the BI Chamber of Commerce, KPUD, and internet service providers to encourage employees and residents to reduce air travel by using technology that makes virtual meetings more effective and affordable.

## 4.3. Current Actions

Municipal

- **Current COBI Policies:** COBI has multiple policies and incentives in place to encourage employees to reduce their single occupancy driving miles. These include:
    - The Commute Trip Reduction (CTR) program: if employees of COBI get to work without a single occupancy vehicle trip more than 60% of the time, they receive $50 a month.
    - The Scoot Car: a Kitsap transit program that allows employees to use a car from City Hall for free during the day.
    - Employees may use City ORCA cards for city business to encourage bus and light rail trips.
    - For the past few years COBI's Green Team has promoted Bike-to-Work day for employees and intends to continue this promotion.
- **State code requirements:** State code requires electric transition for municipalities: RCW 43.19.648 directs municipalities to transition "to the extent practicable, to satisfy 100% of their fuel usage for operating publicly owned vehicles, vessels and construction equipment from electricity or biofuel, effective June 1, 2018."[69]
- **Island-wide transportation plan:** In 2017, COBI adopted an Island-wide transportation plan (IWTP)[70] that has non-motorized elements (see Chapter 6) which the City can implement and thereby address some of these goals.
- **Sustainable transportation initiative:** COBI is working on a sustainable transportation plan and has hired a consultant to advise the City on potential options along with forming a Sustainable Transportation Task Force. This plan is expected to set higher targets than the 2017 IWTP, recognizing the need to reduce greenhouse gases.

Community

- **Community outreach:** The Climate and Energy Forum, a collaborative of Bainbridge community environmental groups, has hosted multiple events over the past few years addressing impacts of internal combustion vehicles and the opportunities for electrification and reduced motor vehicle use.
- **Bainbridge Greenways:** Bainbridge Greenways is a coalition of community groups promoting and advocating sustainable transportation modes on the Island, particularly safe biking and walking for all ages and abilities. In 2018, this group (then called the Bainbridge Mobility Alliance) conducted an extensive survey of the community regarding non-

motorized transportation opportunities, in which they found that Islanders felt our biking and walking infrastructure is generally unsafe.[71]

- **Kitsap Transit**: On Bainbridge Island, Kitsap Transit is working with the state on the expansion of the Day Road Park & Ride to add capacity. At this time, there are 122 stalls of leased park and ride space on the Island; the expansion of Day Road could add between 75-90 new stalls. Just off the Island at the Clearwater Casino, Kitsap Transit has leased 96 stalls to gather commuters prior to driving on the Island.
- **Electric bus:** For the past year, Kitsap Transit has been operating a 40-foot, 100% electric bus in its fleet as a pilot program to evaluate the technology and is planning on a second electric bus.
- **Cleaner diesel buses:** For the last five years, Kitsap Transit has been retiring older diesel ACCESS buses, replacing them with cleaner, propane-powered small buses which can reduce black carbon and also contribute to improved air quality.
- **Transit infrastructure:** Kitsap Transit is currently preparing a study on infrastructure requirements so that the conversion to electric buses is planned and it has the infrastructure in place to support an electric fleet.
- **Washington State Ferries (WSF)**: WSF is planning to transition the three boats servicing Bainbridge Island to hybrid boats (diesel/electric) that can run on 100% electric power by 2022.

## 4.4. Strategies/Actions

**Goal A. Reduce motorized vehicle miles traveled per capita[72]**

**Strategy A.1:** Develop interconnected networks of safe, convenient, and attractive biking and walking pathways for use by people of all ages and abilities to allow for potential increases of non-motorized transportation on the Island.

<u>Priority Action(s)</u>

- 4.A.1 a. Through the Sustainable Transportation Planning Process and other means, develop an ambitious plan to create networks of pathways required to achieve a substantial mode shift to biking and walking, including separated or protected biking and walking lanes.[73]
- 4.A.1.b. Increase COBI staff time or hire a consultant to enhance COBI's capacity to identify and apply for sources of funding (such as federal grants for Safe Routes to Schools and public private partnerships for the needed infrastructure).
- 4.A.1.c. Explicitly consider climate change mitigation (e.g., greenhouse gas reductions) when evaluating options as COBI develops its Sustainable Transportation plan.

<u>Other Action(s)</u>

- 4.A.1.d. Explicitly consider non-motorized transportation options in all appropriate Capital Improvement Plans.
- 4.A.1.e. Work with BISD and BIMPRD to increase the Island's network of separated or protected routes for walking and biking.

- 4.A.1.f. Work with BISD to offer incentives for commuting to school and activities by bicycle or non-motorized alternatives.
- 4.A.1.g. Develop policies to support usage of electric bikes (e.g., invest in public charging infrastructure, and work with community organizations like Helpline House to provide subsidies for low-income residents).
- 4.A.1.h. Develop a complete sidewalk system, where appropriate, along with improved safety features to encourage walking.
- 4.A.1.i. Review current bike parking requirement in COBI code for commercial and multi-family projects to see if there is a need to increase the number of safe spaces to park bikes for their customers, employees, and residents.

**Strategy A.2:** Promote mixed use development and multi-family housing in core areas that enables greater use of non-motorized transportation options and prioritize transit-oriented new development.

Priority Action(s)

- 4.A.2.a. Require incorporation of non-motorized transportation options into all new development (e.g., include sidewalks or pedestrian trails linked to existing and planned trail/sidewalk networks; incorporating bicycle lanes and trails; etc.).
- 4.A.2.b. Require all new development and improve existing connections between developments to accommodate non-motorized and public transit transportation options (including incorporation of bus shelters and other amenities).

Other Action(s)

- 4.A.2.c. Require land use planning that explicitly incorporates walking and bicycling networks, promotes greater density, and optimizes space to minimize the distance people have to travel by car.
- 4.A.2.d. Evaluate increasing Transportation Impact Fees, and possible other fees, to generate revenue to expand non-motorized transportation on the Island.
- 4.A.2.e. Use COBI budgets and other sources to provide significant funding for non-motorized transportation options throughout the Island (e.g., pedestrian and bicycling infrastructure, pathways, bicycle parking, etc.) in existing and new development.
- 4.A.2.f. Provide education and outreach to developers and contractors on incorporating non-motorized transportation options in development, including targeted training to Island and neighboring communities' architects, landscape architects, builders, and related construction professionals.
- 4.A.2.g. Limit incentives for driving (e.g., limit expansion of commercial parking where possible, increase charge for parking at Island commercial centers, provide more convenient parking for EVs) to encourage greater use of biking, walking, and public transportation.

**Strategy A.3.** Work with Kitsap Transit to encourage the use of existing transit and expanding service on the Island.

Priority Action(s)

- 4.A.3.a. In consultation with Kitsap Transit, develop a robust marketing, outreach, and educational program to inform Island residents and those who traverse the Island from outside about public transit options, including park and rides (e.g., information for Island visitors on bus/transit routes & options).

Other Action(s)

- 4.A.3.b. Work with Kitsap Transit to expand on-Island transit service, with greater frequency and coverage, including service on Sundays and during evenings and increase the number of electric buses in the Kitsap Transit fleet.
- 4.A.3.c. Work with Kitsap Transit to expand options and service for people commuting to work on the Island and to the ferry from off Island.
- 4.A.3.d. Work with WSF to provide incentives for people to use a bike for traveling to and from the ferry (e.g., expanding the bike barn, surface-level bike racks (especially important for electric bikes), and provide better space on the ferry).
- 4.A.3.e. Evaluate increasing the price of parking at the ferry to encourage people to take public transportation, bike or walk.

**Strategy A.4.** Encourage greater use of school buses and carpooling for student transportation.

Priority Action(s)

- 4.A.4.a. Work with BISD on measures to discourage private-vehicle drop-offs and pick-ups, encourage car-pooling, biking and walking and promote greater use of school buses.

Other Action(s)

- 4.A.4.b. Work with BISD to develop an anti-idling program for school buses and drop-off areas.
- 4.A.4.c. Work with BISD to explore options beyond biking and walking for helping move students to and from after-school activities, such as partnerships with BI Ride or other entities that could help reduce single student transportation.
- 4.A.4.d. Work with BISD to offer incentives to students for carpooling or riding the bus to/from school.

**Goal B. Reduce emissions from motorized transportation, including through electrification of all modes (on-road, off-road, and ferries) and encourage reduction in air travel.**

**Strategy B.1:** Convert COBI vehicle fleet to electric or biofuels and encourage other Bainbridge Island taxing districts (i.e., BISD, BIMPRD, and BIFD) to convert their fleets to electric or biofuels.

Priority Action(s)

- 4.B.1.a. Transition COBI's fleets to primarily electric vehicles and using biofuels where electric vehicles are not an option and encourage other Bainbridge Island taxing districts to also develop a plan.

Other Action(s)

- 4.B.1.b. Install charging infrastructure across municipal locations (City Hall, Public Works, Police Department) and encourage the installation at the BISD Bus Barn.
- 4.B.1.c. Require justification for COBI to purchase a conventional vehicle.

**Strategy B.2:** Develop infrastructure to support electric vehicles, electric bikes and other personal electric transport options, and off-road transportation.

Priority Action(s)

- 4.B.2.a. Evaluate current code to see if there is a need to increase the number of EV-charge-ready for all new development and major renovations and that multifamily units and commercial development include EV charging infrastructure and secure storage options.
- 4.B.2.b. Install additional charging stations in commercial centers, including Island Village, Coppertop, Lynwood Center.

Other Action(s)

- 4.B.2.c. Explore municipal grants and public-private partnerships, such as working with PSE, to develop grants for EV infrastructure adoption.
- 4.B.2.d. Work with PSE to facilitate and promote adoption of charging infrastructure.

**Strategy B.3:** Support, as needed, efforts to electrify ferry vessels.

Priority Action(s)

- 4.B.3.a. Coordinate with Washington State Ferries, PSE, and other entities as necessary to evaluate the need for, and feasibility of, establishing charging infrastructure on the Island to service ferries.

**Strategy B.4: Encourage reduced vehicle GHG emissions and improved fuel economy.**

Priority Action(s)

- 4.B.4.a. Adopt a city-wide anti-idling ordinance that includes an enforcement component and work with the WSF and State Patrol to reduce idling at the ferry parking lots.

**Strategy B.5: Encourage reduction of air travel by COBI staff and local residents.**

Priority Action(s)

- 4.B.5.a. Work with partners (e.g., Climate Action Bainbridge and Puget Sound Clean Air Agency) to provide public information on benefits of sustainable travel, including reducing air travel.
- 4.B.5.b. Work with service provides to help our community develop and maintain the digital infrastructure it needs to enable more virtual meetings.

# Section 5: Buildings

## Section 5: Buildings

The energy to heat, light, and power buildings and other workspaces is a major source of GHG emissions. Building-related emissions are the state's fastest growing source of GHG emissions and account for 27% of the carbon pollution in Washington.[74]

Additional environmental impacts from buildings include: stormwater runoff; loss and fragmentation of natural areas and wildlife habitat; increased use of limited resources including groundwater; and burdens on existing landfill space, particularly from construction and demolition debris. In addition, results of climate change such as sea level rise, flooding and slope stability may increase the vulnerability of the Island's housing stock.

Green building techniques, coupled with upgrades, proper maintenance and efficiency improvements for existing buildings, can help reduce these impacts. It will also be important to provide incentives and resources to assist low income households in making the necessary changes to reduce their carbon footprint.

**BI Comprehensive Plan: Buildings**

EC 3.1: Encourage use of green building materials and techniques in all types of construction, as well as design approaches that are responsive to changing conditions.
EC 6.3: Develop urban design strategies to ensure that the built environment is appropriate for present and future conditions, including the impacts of climate change.
EN 10.4: Ensure beneficial indoor air quality in all renovations and new construction of City-owned facilities
U 14.5: New taxpayer-funded buildings shall use carbon-neutral energy for heating, cooling, and operational use to the maximum extent practical.
EN 7.1: Consider the implications of sea level rise in all relevant decision-making by using regional sea level rise projections and shoreline instability maps (as provided by the WA Department of Ecology and utilized and interpreted with the Bainbridge Island Climate Impact Assessment).
EN 7.2: Coordinate with Tribal, Federal, State and local agencies to address issues related to sea level rise.

### 5.1. Goals/Targets

**A. Reduce GHG emissions from all municipal, commercial, industrial and residential buildings.**[75]

- By 2021, COBI has adopted green building standards and practices for all new municipal, residential, commercial, and industrial buildings, including affordable housing and all renovations and additions[76] of a certain size.

**B. Establish procedures to ensure buildings and infrastructure are resilient to climate change impacts (e.g., higher precipitation, sea level rise, wildfire risk and temperatures).**

- By 2025, COBI will complete an analysis, develop a plan, and design a process for regularly updating the plan to ensure all City-owned assets will be resilient from sea level rise over the lifespan of the infrastructure.
- By 2025, COBI will complete an analysis, conduct public outreach activities, and identify those properties at highest risk from sea level rise impacts over the next 50 years.

### 5.2. Challenges

- **Lack of familiarity with green building programs:** Many residents and builders lack familiarity with green building programs and certification approaches. This makes it harder

to adopt and incorporate green building practices. Also, city staff involved in planning, building and public works lack familiarity with green building codes and what they can accomplish.

- **Lack of information on the cost-effectiveness of green building programs**: There is a lack of information on the cost effectiveness of adopting green building standards. This makes it difficult to convince developers, builders and homeowners to adopt green building practices. It also provides challenges for municipalities looking to justify the programs.
- **Need to include life-cycle costs:** Sometimes, there is a higher upfront cost for green building and this is viewed as a lost cost instead of an investment. More information on and integration of the life-cycle costs for a project is needed during the planning and permitting process[77] and for the maintenance and operation of the buildings.
- **More information on green building materials:** There is a lack of familiarity among developers, contractors, builders and homeowners about green materials used in green building and the demolition and recycling of materials.

## 5.3. Current Actions

Municipal

- **Comprehensive Plan**: The Comprehensive Plan highlights the need to develop and implement green building strategies.
- **Green building task force:** COBI initiated a process for developing a green building code and formed a Green Building Task Force to provide recommendations to the City on the direction for green building on the Island.
- **City Green Team**: COBI has a Green Team that is working to implement green practices for municipal purchasing and internal operations such as waste diversion and energy conservation actions.
- **Community Solar**: COBI enabled a community-funded solar project to be installed on the roof of City Hall in 2012.

Community

- **Green building certified buildings:** Several buildings on Bainbridge Island are certified as LEED Gold[78] or better, and some are part of the Living Building Challenge.[79]
- **PSE services:** PSE provides free home energy audits and rebates for retrofits to cleaner/more efficient energy systems.[80]

## 5.4. Strategies/Actions

**Goal A: Reduce GHG emissions from all municipal, commercial, industrial and residential buildings.**

**Strategy A.1:** Adopt green building practices and standards for all new municipal, commercial, industrial and residential buildings and all renovations or additions of a certain size[81].

Priority Action(s)

- 5.A.1.a. Adopt Green Building Task Force recommendations on green building practices and standards for all new municipal, commercial, industrial and residential building and all renovations and additions over a certain size.[82]
- 5.A.1.b. Require all new and renovated buildings to apply the EcoAdapt Climate Change Adaptation Certification Tool[83] , or similar tool, to identify and avoid climate risks as part of the permitting process.

Other Action(s)

- 5.A.1.c. Require a life cycle cost/benefit analysis for all new and renovated municipal buildings that includes a GHG emissions analysis.
- 5.A.1.d. Establish a Green Building team within the City that consists of staff from planning and community development and public works that would be responsible for overseeing the implementation of any green building code.
- 5.A.1.e. Join the Regional Code Collaborative to leverage economies of scale in developing and updating green codes.[84]
- 5.A.1.f. Work with the Green Building Task Force to develop guidelines for green affordable housing and provide green design assistance for affordable housing projects.
- 5.A.1.g. Explore using Washington State's Evergreen Sustainable Development Program for the development of green affordable housing.
- 5.A.1.h. Ensure that water-dependent permits include plans for sea level rise.

**Strategy A.2.** Establish or expand programs to assist building owners to reduce GHG emissions, energy use and water consumption.

Priority Action(s)

- 5.A.2.a. Develop training and outreach programs to provide technical assistance to developers, contractors, architects, landscape architects, city employees, and homeowners on green building that includes the cost/benefit to occupants of green building, use of reused and recycled materials, and the health benefits from green buildings to occupants.
- 5.A.2.b. Work with the BISD, BIMPD, and BIFD to ensure any new buildings they build consider green building standards and practices adopted by COBI.

Other Action(s)

- 5.A.2.c. Host a workshop with neighboring communities (e.g., Poulsbo, Silverdale, Bremerton, and Port Orchard) and other Puget Sound communities to learn from about their green building programs.

**Goal B. Establish procedures to ensure buildings and infrastructure are protected from climate change impacts (e.g., higher precipitation, sea level rise, and increased temperatures).**

**Strategy B.1:** Identify and protect City assets at risk due to sea level rise.

Priority Action(s)

- 5.B.1.a. As recommended by the 2019 CCAC Report on Sea Level Rise conduct a systematic, high-resolution analysis of exposure of City assets to sea level rise.
- 5.B.1.b. As recommended by the 2019 CCAC Report on Sea Level Rise create a prioritized list for addressing COBI assets at high risk of sea level rise (e.g., roadways that are expected in the coming decades to be sufficiently flooded that they will not be functional for motorized transit.)
- 5.B.1.c. As recommended by the 2019 CCAC Report on Sea Level Rise, integrate sea level rise analysis into all City planning to identify and avoid or minimize risk to planned infrastructure and development.

Other Action(s)

- 5.B.1.d. Create a tiered strategy for assets at longer-term risk (beyond 2030 but within infrastructure lifespan) and identify solutions for their management

**Strategy B.2**. Assist property owners in identifying risks to existing and planned infrastructure from sea level rise and other climate change impacts.

Priority Action(s)

- 5.B.2.a. Conduct a high-resolution analysis of all shoreline properties to inform landowners of exposure to sea level rises, make this information widely available for property owners to use in decision-making, and provide guidance on possible solutions and regulatory requirements.
- 5.B.2.b. COBI integrates sea-level rise analysis into all City permitting to help applicants identify and avoid or minimize risk to existing infrastructure and land uses and planned infrastructure and development from sea level rise or other climate impacts.
- 5.B.2.c COBI hosts community workshops on climate impacts, how they might impact buildings, and how to prepare properties for these impacts.

Other Action(s)

- 5.B.2.d. Conduct similar analysis for other climate change impacts (e.g., higher precipitation and increased temperatures) and provide guidance on possible solutions and regulatory requirements.

# Section 6: Natural Environment

## Section 6: The Natural Environment

Our actions today will affect the future of our Island's natural resources as the climate changes. COBI's Comprehensive Plan identifies the importance of continuing to protect our open spaces and environmentally sensitive areas, while affirming that climate change will create significant changes to many of these resources. Therefore, the goals, policies and approaches that COBI and other landowners and managers use to protect and sustain these landscapes will also need to shift in order to maintain their effectiveness under these new conditions.

**BI Comprehensive Plan: Natural Environment**

EN 1.1: A primary goal of the Comprehensive Plan is protecting the Island's natural environment; land use decisions implement this goal.
EN 1.3: Protect and enhance the natural systems and environmental quality of Bainbridge Island by continuing to build cooperative relationships between the City, citizens, landowners and other public, non-profit and private organizations.
EN 1.5: Create and maintain overlay maps that show the location of agricultural lands, critical aquifer recharge areas, geologically hazardous areas, floodplains, streams, wetlands and fish and wildlife. Integrate the maps from the BI Climate Impact Assessment.
EN 1.8: Consider the potential impacts of climate change and its impacts in all decisions related to natural systems and environmental quality.
EN 5.10: Consider climate change and its impacts in all decisions related to wildlife, fish resources and natural systems.

### 6.1. Goals/Targets

**A. Steward Bainbridge Island's natural resources to function as healthy, resilient ecosystems that can continue to serve multiple ecological functions including providing habitat, maintaining the hydrologic cycle and storing carbon in the face of the added stresses of climate change.**

- By 2021, COBI is using the EcoAdapt Climate Change Adaptation Certification (or a similar tool) to evaluate land acquisition and development proposals to ensure decisions are climate informed.
- By 2023, COBI will complete a forest stocking density evaluation of City-owned lands to inform its forest management practices.
- By 2025, COBI will develop a comprehensive plan to control and reduce invasive plant species across Bainbridge Island in partnership with relevant stakeholders.
- By 2025, COBI will evaluate and as necessary revise the Community Forest Management Plan adopted in 2017 to ensure that it incorporates adaptation to climate change risk factors including wildfire and drought and pathogens, and will work collaboratively with all stakeholders that manage forest resources to establish consistency in priorities and planning for climate change impacts on forests across jurisdictions and ownership.

**B. Protect and maintain the integrity of our Island's surface and groundwater resources in the face of climate change.**

- By 2023, COBI will adopt a Groundwater Management Plan that accounts for climate change in its projections, policies, and guidance.

**C. Steward our Island's shorelines to allow for resilience in the face of climate impacts including sea level rise.**

- By 2025, COBI will integrate into its Shoreline Master Program approaches to address and adapt to the impacts of sea level rise on the natural resources of our shorelines, and will work collaboratively with all stakeholders that manage shoreline resources to establish consistency in priorities and planning for sea level rise across jurisdictions and ownership. The City should consider explicitly incorporating flood risk projection updates into its 2021 periodic review of the SMP.

**D. Support an agricultural system that prioritizes climate change resilience, local food production, and ecosystem services including soil carbon storage and water management.**

- By 2023, agricultural uses will be incorporated into groundwater planning via the Groundwater Management Plan (see goal B).

## 6.2. Challenges

- **No one-size-fits-all approach:** The complexity of our Island's ecology and geomorphology means that there is no one-size-fits-all approach to climate mitigation and adaptation. Different systems and areas of the Island will require site-specific decision making.
- **Complex forest management history:** Bainbridge has a complex history of forest management, including major deforestation events and a current patchwork of suburban-rural interface and, in some areas, little to no management of dense secondary regrowth. These factors present wildfire and disease risks that are likely to increase under climate change.
- **High level of shoreline modification:** Adaptation to sea level rise is complicated by a high degree of human shoreline modification, as well as significant financial and emotional investments in properties and infrastructure.
- **Low adaptive capacity for streams and wetlands**: Many of our Island's small streams and wetlands are already seasonal in nature, subject to extremes of dry and wet, and have little buffering capacity to withstand additional stresses such as longer periods of drought, more extreme runoff, and/or increasing input of nutrients or pollutants.
- **Sole source aquifer**: Bainbridge Island is a sole source aquifer community, with the vast majority of its groundwater coming from precipitation that falls on the surface of the Island, some of which infiltrates the ground. Our stewardship of this limited resource is likely to be further stressed by lower rates of aquifer recharge expected under climate change along with increasing demand for water with increasing temperatures.
- **Potential saltwater intrusion**: Sea level rise can be expected to increase the possibility of saltwater intrusion into our sea-level aquifer, with repercussions for homeowners who obtain their water from those areas. Septic systems will likely be impacted, diminishing their function and increasing release of nutrients and pathogens into surrounding water and soils. Septic systems, such as on Point Monroe, are already threatened by seawater intrusion.
- **Balance agriculture with growth**: Bainbridge has a rich agricultural history with community and municipal commitments to agriculture that are complicated by high property values and development pressures. Our community faces difficult choices in how to maintain

agricultural values in balance with these competing pressures. We can expect climate change to add challenges to our agricultural activities in several ways including new pests and pathogens, altered water availability, increased water demand and diminished soil health.

## 6.3. Current Actions

Municipal

- **Updated Comprehensive Plan**: COBIs Comprehensive Plan is a powerful guide for addressing climate change mitigation and adaptation in our open spaces and ecosystems (see inset boxes in Strategies highlighting this guidance).
- **Developing Groundwater Management Plan Under Development**: COBI is working towards a comprehensive groundwater management plan that can lay the foundation for monitoring and adapting groundwater management under climate change.
- **Community Forest Management Plan:** in 2017 the City adopted this management plan that sets canopy coverage and forest management goals.
- **Periodic review of the SMP:** review of the Shoreline Master Plan is currently underway and presents opportunities to include issues including flood risk.
- **Addressing climate risks to some COBI infrastructure:** current efforts include the incorporation of sea level rise into the head of Eagle Harbor culvert replacement and moving sewer lines out of the intertidal zone in Eagle Harbor.

**BI Comprehensive Plan: Forests**

EN 1.4: Maintain and enhance natural systems and protect wildlife, fish resources and open spaces through land use plans and development patterns including tree retention and planting.
EN 10.2: Encourage the retention of existing trees and vegetation and the planting of new trees and vegetation that provides natural filtration of suspended particulate matter, removes carbon dioxide and improves air quality.
EN-14: Collaborate with the Kitsap County Noxious Weed Board and other relevant agencies and organizations to develop and maintain a plan to remove and control invasive plant and animal species, as well as prepare for vulnerability to future invasive plant and animal species resulting from climate change and international commerce.
EN-18. Encourage the retention of forest land and multiple-aged forests since healthy forests provide many ecological benefits to all forms of life on the Island and help mitigate climate change.

Community

- **Stakeholders already considering climate change:** The Bainbridge Island Metropolitan Parks and Recreation District (BIMPRD), and Bainbridge Island Land Trust (BILT) are two of the largest owners and managers of open spaces on the Island, each managing approximately 1500 acres of land. Both entities recognize the importance and risks of climate change to their holdings. BILT is actively pursuing identification of climate risks in its conservation easements and owned lands and is working with multiple entities on the Island and throughout the region to understand how to manage their easements and properties under climate change.
- **Many groups active on Island:** Bainbridge Island is very fortunate to have a wide range of groups[85] committed to education and active stewardship that are and will be essential to

our ability to mitigate and adapt our natural resource management for climate change. For example, both BILT and BIMPRD have active volunteer and paid teen programs that help with invasive species removal, native planting, monitoring and other activities to build the health and resilience of our ecosystems in the face of climate change.

## 6.4. Strategies/Actions

**Goal A. Steward Bainbridge Island's natural resources to function as healthy, resilient ecosystems that can continue to provide multiple ecological functions including providing habitat, maintaining the hydrologic cycle, and storing carbon in the face of the added stresses of climate change.**

**Strategy A.1.** Steward Bainbridge Island's natural areas using the best available scientific knowledge about local ecology and climate change.

Priority Action(s)

- 6.A.1.a. Ensure that the City is using the most appropriate, relevant and recent data and information about natural resources, climate change and other associated parameters in decision-making.[86] If data sources are missing, identify how to obtain needed information.
- 6.A.1.b. Develop and adopt a comprehensive strategy for addressing invasive species on City lands to reduce these significant stressors on ecosystems.
- 6.A.1.c. Evaluate all COBI land acquisition and development decisions for City lands or in City review of private development using the EcoAdapt Climate Change Adaptation Certification Tool[87] (or other similar tool) to ensure decisions are climate informed.

Other Action(s)

- 6.A.1.d. Partner with community organizations to leverage additional data sources and monitoring efforts that contribute to well informed natural resource management. For example, update mapping resources of key wildlife habitat in interior forest cores and connective networks.
- 6.A.1.e. Incorporate ecological functions and ecosystem processes contributed by forested landscapes into COBI land use decisions and permitting.
- 6.A.1.f. Add staff training about climate change and its impacts on natural resources in order to build institutional knowledge and integrate climate-savvy thinking into planning decisions. Consider contracting with or adding a wildlife biologist or ecologist to COBI staff who is knowledgeable about climate change and would apply that knowledge and relevant tools to proactively manage natural resources and be a resource for staff and the community.

**Strategy A.2.** Proactively manage Bainbridge forests for anticipated vegetational composition shifts projected under climate change.

Priority Action(s)

- 6.A.2.a. Work with COBI arborist and partnering community groups, as appropriate, to create a preferred list of tree and plant species expected to be favored by climate change projections for use in City planning and restoration efforts. This list can also be used to advise local landowners and be applied to climate savvy development.

Other Action(s)

- 6.A.2.b. Collaborate with community groups to proactively foster climate savvy forest management through information sharing and partnering on education, outreach and stewardship.
- 6.A.2.c. Investigate and integrate best practices for maintaining and where possible improving soil and biomass carbon storage into COBI and other stakeholders' forest management plans.

**BI Comprehensive Plan: Water Resources**

WR 1.1: Study future climate and demand scenarios to accurately plan for future water resource conditions.
WR-3: Surface Water Protection
Achieve no net loss of ecological functions and processes necessary to sustain aquatic resources including loss that may result from cumulative impacts over time.
WR 3.11 Consider the impacts of climate change and ocean acidification when developing regulations or approving capital projects related to aquatic resources including marine nearshore, wetlands, streams, lakes, creeks, associated vegetated areas and frequently flooded areas.
WR-6: Public Education and Outreach
The City in conjunction with partners will continue to improve and implement comprehensive public education and outreach program to promote protection and management of all water resources.

**Strategy A.3.** Reduce wildfire and forest disease risk through proactive forest management.

Priority Action(s)

- 6.A.3.a. Conduct an assessment of stocking densities on COBI owned lands and evaluate forest health improvements and wildfire risk reduction.
- 6.A.3.b. Ensure that COBI policies prioritize wildfire risk reduction in proximity to homes consistent with FireWise guidelines[88] and strengthen wildfire risk-reduction design guidelines for Island construction (residential and business) using approaches such as reviewing new subdivision standards for opportunities to integrate wildfire risk reduction.

Other Action(s)

- 6.A.3.c. Work with partnering agencies, including the Bainbridge Island Fire Department, to help communicate to private land owners' techniques and resources for reducing wildfire risk while maintaining forest health and wildlife habitat values.
- 6.A.3.d. Work with public agencies (e.g., Kitsap Transit, BIMPRD) and utilities (PSE) to design and maintain infrastructure and land use to reduce wildfire risk.
- 6.A.3.e. Prioritize the control and elimination of invasive species such as scotch broom and holly that are known to have additional wildfire risk (flammability).
- 6.A.3.f. Work with community organizations including BIMPRD and BILT to proactively identify, treat and contain plant pathogens, as well as invasive species.

**Goal B. Protect and maintain the integrity of our Island's surface and groundwater resources in the face of climate change.**

**Strategy B.1.** Maximize protections for intact hydrologic processes including aquifer recharge, groundwater-surface water interactions, and stormwater runoff.

Priority Action(s)

- 6.B.1.a. Incentivize and maximize opportunities for incorporating water conservation features in Green Design and Building Codes (see Buildings Section Goal A).
- 6.B.1.b. Continue a robust surface water monitoring program that can identify trends in streamflow and water quality to inform adaptive management to protect stream health and integrate into monitoring climate change-sensitive parameters as appropriate.

Other Action(s)

- 6.B.1.c. Prioritize evaluation and adaptive management (e.g., ARPA implementation) of the Critical Areas Ordinance to maintain the integrity of streams, wetlands and their buffers.
- 6.B.1.d Evaluate and revise stormwater code through the lens of likely increases in storm intensity and rainfall
- 6.b.1.e Evaluate and support opportunities to increase aquifer recharge, e.g. through upland discharge or infiltration of tertiary sewage effluent.
- 6.B.1.f. Protect water rights for natural systems, assessing hydrological human/nature conflict potential as part of land use planning, including evaluation of projected water scarcity and over abundance.
- 6.B.1.g. Partner with community organizations such as Sustainable Bainbridge, Washington State University Extension, and BILT to conduct education and outreach with the public about their role in protecting hydrologic processes given the realities of climate change via protecting intact functioning streams and wetlands, as well as incorporating rain gardens and other low impact development techniques into their properties.

**Strategy B.2.** Identify and implement targets that will balance aquifer discharge and recharge, incorporating climate change projections.

Priority Action(s)

- 6.B.2.a. Complete and implement COBI's Groundwater Management Plan, including incorporation of expected changes to groundwater inputs and outputs under climate change.

Other Action(s)

- 6.B.2.b. Work collaboratively with the Utility Advisory Committee and all Island drinking water systems on ways to maintain sustainable yields in the face of climate change, including outreach and communication about water conservation.

**Goal C. Steward our Island's shorelines to allow for resilience in the face of climate impacts including sea level rise.**[89]

**Strategy C.1.** Incorporate sea level rise and changes in shoreline stability and erosion into the shoreline master program and other shoreline management planning decisions.

Priority Action(s)

- 6.C.1.a. Ensure that planning for sea level rise on the timeframe relevant to any proposed action's lifetime impact is explicitly incorporated into the Shoreline Master Plan, including incorporating capacity for inundation and change to natural shoreline features, such as planting for shifting vegetative communities, infrastructure movement or abandonment to adapt to habitat loss at shoreline.

**BI Comprehensive Plan: Agriculture**

EN15.9: Work with the Conservation District and nonprofits to encourage farming that accounts for changing Island conditions with regard to hydrology, temperature and other climatologically influenced factors.
EN15.10: Improve public information and creating new programs to promote agriculture while advocating for farming practices that protect water quality and quantity.

Other Action(s)

- 6.C.1.b. Ensure that ecosystem concerns are included in any plans for potential transitions to open space or living shorelines for properties that will be inundated by sea level rise or degraded by coastal erosion and/or slope instability. Begin community conversations regarding our desired outcomes related to sea level rise, coastal erosion and slope instability (see Buildings Section Goal B for other actions).
- 6.C.1.c. Work with Island stakeholders with publicly accessible properties and properties held in trust for natural resource values, including the Bainbridge Island Land Trust and the Bainbridge Island Metropolitan Parks and Recreation District to collaboratively identify and integrate sea level rise changes into planning for shoreline resources.
- 6.C.1.d. Partner with community organizations such as Puget Sound Restoration Fund and Bainbridge Beach Naturalists to monitor local effects of ocean acidification on shellfish resources.

**Goal D. Support an agricultural system that prioritizes climate change resilient, local food production and ecosystem services, including soil carbon storage and water management.**

**Strategy D.1.** Maximize opportunities for agricultural practices that mitigate climate change, including lower energy intensive practices, carbon storage, aquifer recharge, and smaller foodsheds.[90]

Priority Action(s)

- 6.D.1.a. Work collaboratively with individual farmers and community groups including Friends of the Farms, Master Gardeners, and Kitsap Conservation District to identify and promote agricultural policies that increase carbon storage (e.g., soil sequestration) and hydrologic integrity, and reduce emissions including permaculture and reduced energy inputs (e.g., fertilizer, fossil fuels).

Other Action(s)

- 6.D.1.b. Work with partnering entities to promote and facilitate the equitable adoption of non-traditional agricultural opportunities (e.g., community gardens, urban agriculture,

vertical agriculture, public food forests) to promote local food production throughout the community.

- 6.D.1.c. Support opportunities for energy production co-located with agricultural activities (e.g., biodigester and solar projects).
- 6.D.1.d. Ensure that water use-related permits include plans for future water conditions.
- 6.D.1.e. Collaborate with Public Farmland partners and resource agencies (e.g., Kitsap Conservation District) to ensure water conservation efforts are integrated into public farmland management.
- 6.D.1.f. Work with partnering organizations including the Kitsap Conservation District to bring resources for water conservation to private and other community farming efforts.

**Strategy D.2.** Improve manure management to reduce emissions associated with livestock waste and fertilizer delivery.

Priority Action(s)

- 6.D.2.a. Work collaboratively with Kitsap Conservation District to offer technical resources to livestock owners for manure management. Consider development of a memorandum of understanding and funding to support additional manure management efforts.

Other Action(s)

- 6.D.2.b. Work with community groups and other entities to identify additional opportunities for manure management (e.g., community composting systems, digesters, or other resources that reduce manure emissions; see Chapter 7 for more on this topic) and code changes that could facilitate the implementation of local green waste management.

# Section 7: Waste

## Section 7: Waste

The GHG Community emissions inventory indicated that less than 1% of current greenhouse gases are from wastewater treatment and about 4% are from solid waste generation.

In addition, the consumption-based GHG inventory indicated that our purchasing decisions result in an estimated 52 $MTCO_2e$ per year per household, confirming that consumption is a significant contributor to emissions.

The choices we make about the food we eat, our driving habits and vehicle selections, consumer purchases, and the type of housing we choose, all have a large impact on GHG emissions. The waste and disposal of materials during and at the end of these consumption choices can be a substantive component of those emissions.

There has arguably never been more urgency around the need to reduce our collective waste footprint. Reasons for the urgency include:

- The climate impacts of transporting and landfilling our waste.
- The land use impacts of landfilling.
- The substantial problem of food waste wherein 40% of food grown in the US is wasted along the entire pathway from producer to consumer.
- The substantive impacts of single-use plastics on their production, landfilling and improper release into our environment.
- The substantial impacts of excess packaging, particularly non-recyclable packaging, on our carbon and waste footprints.

**BI Comprehensive Plan: Waste**

E.C.3.3: Encourage local enterprises to participate in programs such as Kitsap County Waste Wise and Green Community Initiative.
E.C.3.4: Encourage public sector solid waste reduction, reuse and recycling.
E.C. 3.5: Encourage existing and new businesses to become part of a linked cooperative whereby the by-products and waste of one enterprise become the raw materials of another
E.C. 3.6: Create opportunities to foster green technology and industries, such as energy, waste, and information technology, which have the potential to create local, family wage jobs in our community.

## 7.1. Goals/Targets

**A. Reduce Island residential, commercial, and industrial waste generation.**

- By 2021, COBI's approved sustainable procurement plan[91] is applied across all departments for 100% of purchases.
- By 2021, COBI establishes policies to substantially reduce the use of single-use disposable food service ware by Island businesses.

**B. Increase diversion of waste from the landfill**

- By 2023, regular commercial compost services are established and consistently used.
- By 2025, COBI develops a requirement for the diversion of all food waste from the landfill.

**C. Optimize collection and disposal systems to minimize GHG emissions**

- By 2030, Bainbridge has a closed-loop system for its green and agricultural waste, such that organic materials are recycled and reused on Island to the maximum extent practicable.

**D. Ensure that any new waste-related infrastructure, such as transfer stations or composting facilities, are not sited in current or future hazard areas.**

## 7.2. Challenges

- **Lack of markets**: Un-recyclable packaging and overabundance of disposable plastics is a massive, global problem. The US recycling market is facing severe challenges in terms of tightened restrictions on what is accepted overseas. This causes real strains on waste management. Domestically, we are not prepared for the flood of materials that do not have places to go. These large issues translate to direct impacts on our local community. These impacts include a glut of non-recyclable, fossil-fuel based materials, increases in recycling costs, and reduction in what materials can be accepted for recycling locally.
- **Location:** We face specific challenges in waste reduction as a small Island community in Puget Sound. Our solid waste is trucked and shipped by rail to be landfilled in eastern Oregon, which represents a large carbon footprint in terms of both transportation and landfilling.
- **Lack of composting facilities:** The vast majority of our green waste is trucked off Island to Belfair in Mason County. We do not currently capture for composting an unknown, but likely substantial, portion of our green waste (particularly food and compostable materials) that is generated from residential, commercial and agricultural activities.
- **Lack of infrastructure:** Infrastructure barriers need to be overcome to address these issues: for example, no current commercial food waste service is provided for businesses, and narrow access points in some commercial areas (especially downtown) create obstacles to additional waste bins and pickup service.
- **Lack of understanding**: The public does not have a clear understanding of the different types of compostable materials, such as plant-based plastics and packaging alternatives, and which can be accepted by Island composting services. Some “compostable” packaging is compostable by commercial facilities in King County but not in Kitsap County.

These challenges also represent an opportunity to achieve meaningful emissions reductions and environmental impacts if we can find ways to reduce the amount of materials that are sent to landfills, divert more waste to compost, and reduce the transportation footprint of green waste.

## 7.3. Current Actions

<u>Municipal</u>

- **Sustainable Procurement Plan**: COBI has an approved sustainable procurement plan, which states that staff should buy sustainable alternatives if the price is comparable.

- **Staff in place**: COBI has oversight staff in each department to check on internal composting and recycling within the facility.

Community

- **Bainbridge Disposal (BD) Yard Waste Service**: The public has an option to purchase residential curbside recycling and/or yard waste services through BD. The latter allows for composting of both green and food waste.
- **BISD:** BISD has formed a District green team to address waste reduction and conservation. This entity has worked with district-wide and campus policies to pursue changes including the elimination of disposable flatware at many schools; the implementation of recycling waste streams including for plastic film, Styrofoam, markers and more; and 3-bin compost/recycle/landfill with educational programs and monitoring at multiple campuses.
- **Bainbridge Island Zero Waste (BIZW)**: BIZW is a program of the nonprofit organization Sustainable Bainbridge. Its website[92] provides many resources to guide local waste reduction, reuse and recycling. Its volunteers undertake a wide variety of efforts including, but not limited to, education and waste sorting at major community events, Styrofoam recycling events twice a year at Bay Hay and Feed, and a lending library of reusable dinnerware and other items available for free to the public.
- **Buy Nothing Bainbridge:** This, and other similar groups on social media such as "Free on the Rock," disseminate free items throughout the community from individuals who want to dispose of an item to individuals who want the item. These groups likely keep thousands of items circulating in the local economy and prolong their life out of the landfill. As such they contribute to community waste reduction.
- **The Bainbridge Island Rotary Auction and Rummage sale:** The Rotary Auction can reasonably be called one of the largest reuse and recycling events on the Island, not only because of all the materials that are resold for reuse, but also because the Rotary Green Team works tirelessly to reduce and divert literally tons of landfill waste through proper recycling and through partnerships with dozens of nonprofits to take materials that might otherwise go to the landfill.
- **Kitsap County:** The County is charged with education outreach for all of Kitsap County, including Bainbridge. Resources include:
    - Fliers and corrugated posters (for posting at outdoor multifamily residences) that Kitsap Solid Waste and Bainbridge Disposal (BD) give out, although this past year BD created their own fliers for the transfer station and commercial recycling.
    - EnviroStars green business program.
    - Outreach materials for BIZW as requested, including fliers, corrugated posters, compost buckets, bags.
    - A "What Do I Do with It?" web page with recycling and reuse information (http://recycle.kitsapgov.com/Pages/Home.aspx).
    - A Kitsap County Recycling and Garbage News email newsletter.
    - The Kitsap County Solid Waste Advisory Committee. A BIZW member is currently the City's representative on the Kitsap County Solid Waste Advisory Committee, and as such serves as a liaison for our community.

- A resource and waste reduction specialist who will come speak to any Island group, and has spoken at multiple City and nonprofit events.

## 7.4. Strategies/Actions

**Goal A. Reduce Island residential, commercial, and industrial waste generation**

**Strategy A.1.** In collaboration with COBI's Green Team, promote sustainable consumption within COBI operations.

Priority Action(s)

- 7.A.1.a. Centralize purchasing within COBI to increase adherence to COBI's sustainable procurement policy.

Other Action(s)

- 7.A.1.b. Install hydration stations in all municipal facilities to allow refills of reusable water bottles.
- 7.A.1.c. Require an annual audit of the COBI sustainable procurement policy to ensure compliance.

**Strategy A.2** Promote sustainable consumption in the community.

Priority Action(s)

- 7.A.2.a. Adopt an ordinance to reduce the use of single-use plastic food service ware, including utensils and take-out containers, by all Island food service establishments.

Other Action(s)

- 7.A.2.b. Support efforts to make hydration stations available throughout the community including parks.
- 7.A.2.c. Consider a COBI small grants program (e.g., Neighborhood Matching Grants program) to support BIZW and similar efforts to provide community services that reduce the use of single-use plastics (e.g., through lending libraries, consumer education, etc.).
- 7.A.2.d. Work with partnering organizations to identify opportunities for providing space for the implementation of sustainability events and programs (e.g., fix-it fairs and lending libraries).
- 7.A.2.e. Consider creating a forum or platform whereby local businesses can share their ideas and problem-solve issues related to sustainable consumption (e.g., reducing packaging, increasing waste diversion, reducing single-use items, sourcing materials more sustainably).

**Strategy A.3.** Reduce food waste by both commercial entities and residents.

Priority Action(s)

- 7.A.3.a. Educate the community about ways to reduce food waste and promote opportunities for viable food to get to those who need it, including food banks and neighborhood giving.

Other Action(s)

- 7.A.3.b. Work with partnering organizations such as Kitsap Harvest to increase collection of excess fresh food (i.e., gleaning, or harvesting excess or unwanted crops for distribution to those in need) at private and public farmlands.
- 7.A.3.c. Provide small grants to BIZW to partner with community/youth/sports groups that can volunteer to do waste diversion efforts at community events.
- 7.A.3.d. Urge WSF to renew on-ferry composting service and provide good signage.

**Goal B. Increase diversion of waste from the landfill**

**Strategy B.1** Expand municipal, residential and commercial recycling and composting participation.

Priority Action(s)

- 7.B.1.a. Work with Bainbridge Disposal (BD) to offer curbside compost pickup for all commercial facilities as a weekly service.
- 7.B.1.b. Require that all commercial entities participate in recycling and, once established, in the green waste program.

Other Action(s)

- 7.B.1.c. Consistently pair and provide clear signage for all compost and recycling bins in all meeting rooms in COBI facilities.
- 7.B.1.d. Evaluate the adoption of a program to require community-wide diversion of organic waste from the landfill.
- 7.B.1.e. Facilitate and support education and outreach to consumers about green waste options and what materials are acceptable for composting.
- 7.B.1.f. Recognize/award businesses that are taking voluntary and meaningful steps to reduce their waste (e.g., composting).
- 7.B.1.g. Encourage businesses to receive green certification from their respective certifying organizations (e.g., Green Circle Salons, Green Restaurant Association, etc.).
- 7.B.1.h. Work with BD to add specialized recycling streams at the Transfer Station (e.g., expanded polystyrene—aka Styrofoam).
- 7.B.1.i. Support state policies that decrease/eliminate the use of non-sustainable, non-recyclable packaging materials such as Styrofoam and single-use plastics.
- 7.B.1.j. Require that organizers and vendors of festivals, sporting events, and official gatherings on the Island provide and fund composting and recycling services for their events to maximize waste diversion from landfills. This can be done through language in permit

forms for special events. Fund oversight and enforcement of waste diversion at City-permitted events.

**Strategy B.2** Increase the collection and diversion of construction, renovation, and demolition waste.

Priority Action(s)

- 7.B.2.a. Require, and where appropriate provide incentives for, the reduction, collection and diversion of construction and demolition waste. Seek specific recommendation from the City's Green Building Task Force on this action.

**Goal C: Optimize collection and disposal systems to minimize GHG emissions**

**Strategy C.1** Reduce GHG emissions associated with off-Island transportation of green waste.

Priority Action(s)

- 7.C.1.a. Evaluate and support opportunities to better accommodate on-Island or more local processing of green waste (e.g., through amendments to municipal code and allowed uses).

**Goal D: Ensure that any new waste-related infrastructure, such as transfer stations and composting facilities, are not sited in current or future hazard areas.**

**Strategy D.1** Consider projected climate change impacts and explicitly factor these projections into site selection for waste-related infrastructure.

Priority Action(s)

- 7.D.1.a. Apply the EcoAdapt Climate Change Adaptation Certification Tool[93] to any new waste-related infrastructure projects.

# Section 8: Community Engagement

## Section 8: Community Engagement

Community engagement and community buy-in is essential to effectively implement actions throughout the CAP and to achieve the overarching mitigation and adaptation goals. The starting point is providing the community with information on the observed and projected impacts from climate change and then provide information on how we as an Island can adapt to those changes.

While action by COBI and other organizations such as BISD and BIMPRD, are important, individual actions can also make a large difference in meeting our goals for reducing GHG emissions Island-wide and successfully adapting to the coming changes. Finally, we need to incorporate climate change in our discussions about how to prepare our Island for emergencies.

**BI Comprehensive Plan: Community Engagement**

EC7.8: Support and make Bainbridge Island a model community for climate change preparedness and sustainability practices to ensure long-term viability while attracting and protecting visitors, businesses, and residents.
EN1.8: Consider the potential impacts of climate change and its impacts in all decisions related to natural systems and environmental quality.
EN5:10: Consider climate change and its impacts in all decisions related to wildlife, fish resources, and natural systems.
EN7.1: Consider the implications of sea level rise in all relevant decision-making by using regional sea level rise projections and shoreline instability maps.
EN7.2: Coordinate with Tribal, Federal, State and local agencies to address issues related to sea level rise.
EN12.1: Support and implement climate pledges and commitments undertaken by the City and other multi-jurisdictional efforts to reduce GHG emissions, address climate change, sea level risk, ocean acidification, and other impacts of changing global conditions.
EN12.3: Strive for reduced GHG emissions by, among other actions, integrating climate change into the City planning process, including land use and transportation planning and management, and making climate change considerations and meeting GHG emission reduction goals a component of city decision-making.
EN12.5: Support the development of a public education program which informs all citizens on the methods and progress for meeting the Island's GHG emission goals, and ways citizens can assist in reaching the reduction goals.

### 8.1. Goals/Targets

**A. Increase the Bainbridge community's awareness and knowledge about current and future climate change related impacts and ways to reduce those impacts.**

- By 2021, a majority of the Bainbridge community has ready access to current climate change information, is aware of climate change issues, and understands what COBI and what they as individuals can do about it.

**B. Inspire action across the community and partner with local and regional organizations to take meaningful climate change mitigation and adaptation actions.**

- By 2021, COBI and committees like the CCAC meet regularly with other advisory committees, community groups and have established relationships with other jurisdictions to share, support and exchange climate change information and strategies.

**C. Empower and prepare COBI, Bainbridge Island residents, and Bainbridge Island businesses for climate impacts and emergencies.**

- By 2022, COBI's existing authority, budget and capacity is sufficient to address and respond to climate change related issues.
- By 2022, COBI will have incorporated climate change into its emergency preparedness programs.

## 8.2. Challenges

- **Results of actions are not readily apparent:** Addressing climate change impacts and preparing for mitigation or adaptation often requires nonspecific long-range effort without immediate results.
- **Skepticism:** Some people are skeptical that climate change needs to be addressed.
- **Perceived futility:** Some people do not feel that their individual actions can really make a difference given the scale of the climate crisis.
- **Inadequate funding:** Lack of capacity in the City's budget to support CCAC efforts – materials for outreach, dedicated staff support etc.
- **Coordination with outside entities required:** Addressing climate change in a meaningful way requires coordination and support from entities outside of the City's control (e.g.WSF, PSE, Washington Department of Transportation). To an extent, it also is dependent on the State and national level conversations about climate action.

## 8.3. Current Actions

<u>Municipal</u>

- **Several resolutions or ordinances are already on the books:** The City has taken a number of actions that support climate change over the past several years such as National Drive Electric Week 2019 (Proclamation); supporting Green New Deal (Resolution 2019-14); endorsing Clean Air Energy Initiative 1631 (Resolution 2018-27); supporting a carbon pricing policy for Washington State (Resolution 2017-04; establishing a Climate Change Advisory Committee (Ordinance 2017-03); affirming Support for Paris Climate Agreement (Resolution 2017-20); and integrating climate change into the 2016 Comprehensive Plan.
- **New plans are in the works:** COBI has formed a Green Building Task Force and a Sustainable Transportation Task Force. These task forces will consider ways to encourage or require GHG emission reductions and recognize the role that buildings and transportation related GHG emissions play in impacting climate change.

<u>Community</u>

- **Existing community groups:** There are a number of existing community groups on Bainbridge Island which acknowledge the need to address climate change (e.g. Climate Action Bainbridge, Sustainable Bainbridge, Citizens Climate Lobby, and Indivisible), nonprofits such as the BILT, Friends of the Farm (FOTF) and Bainbridge Island Parks Foundation (BIPF) and faith-based organizations.
- **Public entities recognize climate crisis:** Other public entities on Bainbridge Island are starting to recognize and take actions related to climate change (e.g. BIMPRD)

- **Ongoing educational opportunities:** Existing groups provide regular educational forums such as the Climate and Energy Forum and Movies that Matter.

## 8.4. Strategies/Actions

**Goal A: Increase the Bainbridge community's awareness and knowledge about current and future climate change related impacts and ways to reduce those impacts.**

**Strategy A.1.** Provide easily and equitably accessible educational materials/information throughout the community about climate change.

Priority Action(s)

- 8.A.1.a. Develop a dedicated climate change webpage on the City's website including links to climate mitigation/adaptation resources on the CCAC website and make the CAP widely and easily available to all in the community on-line and in print formats (copies at the library along with GHG inventory, Sea Level Rise analysis and Bainbridge Island Climate Impact Assessment that will be updated periodically by members of the CCAC).
- 8.A.1.b. Consult with the Equity Task Force to ensure outreach efforts and education materials are designed and implemented to reach all segments of the Bainbridge community. See also Section 9: Implementation Action 9.B.1.a.

Other Action(s)

- 8.A.1.c. Convene semi-annual events to communicate what City and City committees are doing on climate change (e.g., Saturday morning event in City Hall at the same time as the Farmers Market)
- 8.A.1.d. Actively support educational forums and opportunities provided by other community groups including digital and on-line information and activities.
- 8.A.1.e. Evaluate the vulnerability of COBI and non-COBI assets to climate change starting with a sea level rise assessment; See Section 6, Strategy C.1.
- 8.A.1.f. Hold community discussions around vulnerability of COBI and non-COBI sites from climate change.
- 8A.1.g. Incorporate vulnerability evaluations into COBI decision-making for all projects.

**Strategy A.2**. Increase community knowledge of actions that individuals can take to reduce their GHG emissions and prepare for current and future climate impacts.

Priority Action(s)

- 8.A.2.a. Include a climate change tip of the [month] as a regular feature in the City Manager's report and on social media.

Other Action(s)

- 8.A.2.b. Hold neighborhood meetings to discuss climate change impacts, including impacts on human and environmental health, and what individuals can do (e.g., hold meetings in the three different wards or work with the Map Your Neighborhood groups.).
- 8.A.2.c. Create Bainbridge Island Climate Change Week in conjunction with Earth Month or Arbor Day.

**Goal B. Inspire action across the community and partner with local and regional organizations to take meaningful climate change mitigation and adaptation actions.**

**Strategy B.1**. COBI partners with local and regional organizations on mitigation and adaptation actions.

Priority Action(s)
- 8.B.1.a. Declare a climate emergency.[94]
- 8.B.1.b. Be a regional leader in recognizing the important role that municipal governments can play in taking action to respond to climate change.
- 8.B.1.c. Work cooperatively with other jurisdictions in Kitsap and King Counties (e.g., Poulsbo, Silverdale, Kingston, Bremerton, Seattle) and throughout Puget Sound to find regional solutions including mitigation and adaptation actions that would benefit from economies of scale or the sharing of lessons learned.

Other Action(s)
- 8.B.1.c. Encourage increased coordination/collaboration with other City Advisory Committees such as the Utilities Advisory Committee, Race Equity Task Force, Green Building Task Forces, Sustainable Transportation Task Force, Design Review Board and Bainbridge Island taxing entities.
- 8.B.1.d. Partner with BISD to conduct regular updates to the GHG emissions inventory using their developed high school curriculum and access to ICLEI resources via a memorandum of understanding with the City.
- 8.B.1.e. Work collaboratively with and actively support work by existing community groups to disseminate information (Climate Action Bainbridge, Sustainable Bainbridge, Citizens Climate Lobby, Indivisible, BILT, FOTF, Bainbridge Island Woman's Club, BIPF and faith-based organizations).

**Strategy B.2.** COBI inspires Bainbridge community members to take meaningful individual action.

Priority Action(s)
- 8.B.2.a. Host workshops with hands-on demonstrations for community members to learn how to take specific actions (e.g., building a rain barrel, dehydrate food as part of emergency preparedness, build and use compost bin, use an electric bike, construct a rain garden, assemble an emergency kit, install less resource intensive landscaping).
- 8.B.2.b. Host events for community project(s) to bring people together to work towards mitigation and adaptation (e.g., building a community rain garden, working on a trail,

making signs for bike/pedestrian routes, pulling ivy, planting climate resilient plants, and constructing community pea patch).

**Goal C.** Empower and prepare COBI, Bainbridge Island residents, and Bainbridge Island businesses for climate impacts and emergencies.

**Strategy C.1**. Ensure the City is empowered and has the necessary authority and capability/capacity to plan and implement actions to mitigate and adapt to climate change impacts.

Priority Action(s)

- 8.C.1.a. In coordination with the COBI attorney, review existing laws, regulations and policies and revise as needed by asking the following sorts of questions.
    - Are they adequate to require, or at least encourage, GHG emission reductions from City regulated or endorsed activities as well as from individual activities?
    - Do they provide sufficient authority/flexibility to respond to impacts and emergencies?
    - Are recommended mitigations/adaptations actions allowed?
- 8.C.1.b. Hire a COBI Climate Mitigation/Adaptation Officer to coordinate activities between and among the various city offices, inspect for compliance with climate related code compliance, and serve as a City staff liaison with the CCAC.
- 8.C.1.c. Include Climate Change related expenditures in the City budget for education, code compliance, mitigation and adaptation action items identified in the CAP. See Implementation Section 9.5 Funding for general discussion of funding needs.

**Strategy C.2**. Establish programs or networks to ensure COBI, businesses, and residents are prepared to effectively adapt to climate change impacts and emergencies.

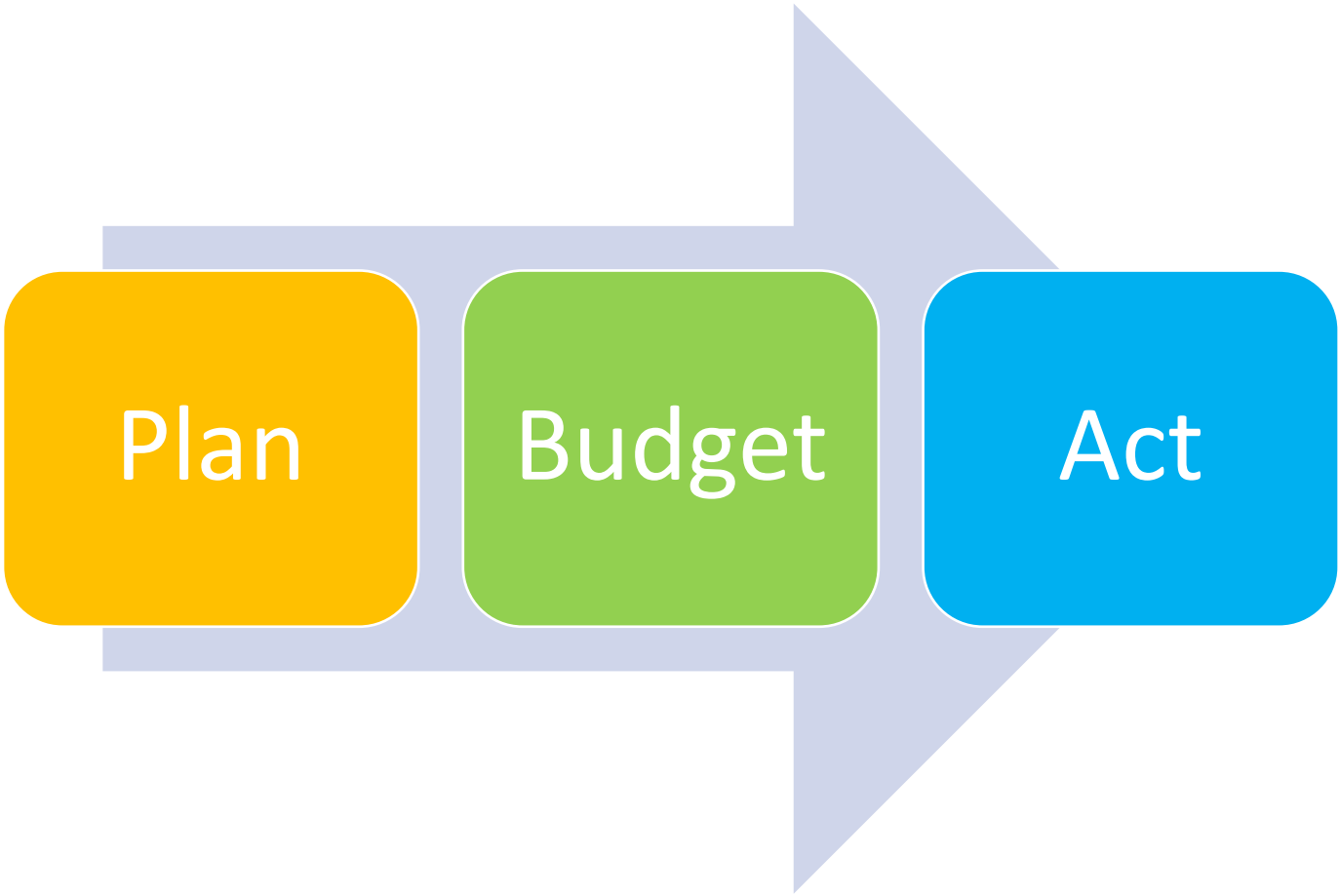
Priority Action(s)

- 8.C.2.a. Work with Bainbridge Prepares, the Bainbridge Island Fire Department, and others, to establish equitable access to community centers for recharging generators and cell phones during outages, and providing emergency food/water/filtered air during poor air quality due to fires across the west. Develop strategies to provide these services during a pandemic or other emergency that does not allow for close quarters.

Other Action(s)

- 8.C.2.b. Incorporate climate change into COBI emergency preparedness programs. COBI works with the Emergency Preparedness group, the CCAC and others to develop materials on the climate change impacts to include in their emergency preparedness outreach. Include potential climate change impact scenarios, key climate change data and sea level rise examples as part of the annual emergency preparedness exercise and workshops.
- 8.C.2.c. Help develop and support food resilience networks.
- 8.C.2.d. Work with PSE and others to develop neighborhood microgrids with local generation and storage. See Section 3 (Energy) Action 3.C.2.a.

# Section 9: Implementation



## Section 9: Implementation

This section describes the steps that need to be taken to ensure that the CAP is successfully implemented and that the community is regularly informed about progress toward achieving the CAP goals. It is critical that COBI tracks progress in achieving the CAP goals, with the help of the CCAC, and modifies those actions as needed over time if needed. It is especially important to provide transparency and accountability to move our Island forward in reducing GHG emissions and preparing for current and future climate change impacts.

Implementation details for all of the priority actions in this CAP, including those listed in this chapter, can be found in the appendix.

### 9.1. Kickstarting Implementation

In the first year after CAP adoption, COBI needs to put in place critical foundational elements for CAP implementation and begin to implement the highest-priority actions with available resources. Specifically, no later than January 30, 2021, COBI will implement the following actions related to kick-starting implementation.

**Strategy A.1.** Initiating implementation

<u>Priority Action(s)</u>

- 9.A.1.a Confirm COBI staff person to liaise with the CCAC until a dedicated Climate Change Mitigation/Adaptation Officer is hired. See Section 8 Community Engagement Action 8.C.1.b.
- 9.A.1.b Identify a COBI staff person in each department who will provide information to the City staff liaison (Climate Change Officer) identified in Action 9.A.1.a. This person will provide department-specific information on timelines for completing actions and report on progress on CAP actions led by that department.

### 9.2. Leadership

Successful CAP implementation will require strong, long-term commitments from the City Council, engagement of COBI staff, ongoing operation of the CCAC, and community support for climate action.

The Bainbridge Island City Council is responsible for the oversight of implementing the CAP. They need to make policy decisions and budget decisions that advance CAP implementation and review updates on CAP progress.

As directed by the City Council. the CCAC will provide ongoing assistance to the Council and actively participate in Plan implementation by:

- Advising on methods for monitoring and tracking progress towards meeting CAP goals.
- Making recommendations to the Council on policies that further the goals of the CAP.
- Reviewing COBI's brief annual CAP progress report each year and considering new recommendations to the Council.

- Supporting—and in some cases leading—public engagement efforts.

The City Manager will actively support the Council's climate commitment by requiring the involvement of all City divisions, as needed and appropriate, in CAP implementation and requiring consideration of mitigation and adaptation goals when doing budgeting, strategic planning and work planning.

## 9.3. Equity

The City Council, City Manager, City departments, and CCAC are responsible for considering the potential for unforeseen and/or unequitable impacts to members of our Island community from the implementation of CAP strategies and actions. They will be responsible for identifying ways to address or reduce any such impacts or burdens, and to seek to implement actions in ways that advance social equity.

The CCAC used equity as one of the key criteria for evaluating actions in order to determine which to prioritize. We sought to ensure that CAP actions would contribute to or support social justice, equity, diversity, and inclusion. Actions received higher scores if they would directly support populations of concern (e.g., low income, children and pregnant women, older adults, communities of color) in our community to reduce GHG emissions, if they would improve these populations' ability to adapt to climate change impacts, and if they would not create an inequitable burden.

City staff will work to involve diverse community voices from the start of any new initiative. Engagement efforts will include meaningful actions aimed at informing and being informed by community members from all income levels, races and ethnicities, political persuasions, genders, age groups and neighborhoods. The City will also engage people who may work on the Island, or send children to school or daycare on the Island, but who do not live on the Island.

**Strategy B.1.** Consistently consider equity in all CAP implementation and engagement efforts.

<u>Priority Action(s)</u>

- 9.B.1.a. Consider and minimize the potential for unintended and/or inequitable impacts from each action prior to implementation.

## 9.4. Accountability, Reporting, and Future Updates

COBI will update the municipal GHG emissions inventory annually and community GHG emissions inventory approximately every three years and no less frequently than once every five years.

At this time, we expect to complete updated community GHG emissions inventories in 2022, 2026, 2031, 2036, 2041, and 2046, which will allow us to analyze emissions in our target years (2025, 2035, 2045) to determine if we are meeting our targets.

The hope is that the greenhouse gas inventories can be done through a partnership with BISD and the involvement of local high school students. Alternatively, COBI could hire consultants.

The CCAC will work with COBI to produce a brief CAP progress report every year. This report will summarize the progress of each CAP action. The CCAC will rely on the collaboration and input of City staff to gather all the necessary information. The CAP progress report will be made publicly available through COBI's website, and will be presented at a City Council session open to the public.

COBI will work with the CCAC, community members, and the Council to update the CAP every five years. This process will include updating the GHG emissions inventory information, updating CAP goals, re-prioritizing actions based on changing local circumstances and new technologies, and adding new strategies and actions as needed and based on community input.

Evaluations of effectiveness will also be essential to inform adaptive management. To make it more manageable, the evaluation effort could be distributed over time, such as by tackling strategies under a subset of sectors each year, ensuring that all have been reviewed prior to the five-year CAP update. If urgent corrections are needed based on evaluation findings, the City should implement those in a timely manner rather than waiting for the next update cycle.

**Strategy C.1** Update information and plans on a regular basis.

Priority Actions

- 9.C.1.a. Produce a CAP progress report every year that includes a review of actions undertaken during the year and additional actions needed (including those currently listed as "other" rather than "priority" actions) to meet the CAP goals for reducing GHG emissions and preparing the Island for climate impacts.
- 9.C.1.b. Update the GHG emissions inventory every three to five years.
- 9.C.1.c. Update the CAP every five years.
- 9.C.1.d. Prior to the five-year CAP update, evaluate the effectiveness of implemented actions in terms of progress towards goals and targets, in order to inform adaptive management. Consider creating a dashboard of key metrics as a tool for the evaluation and associated communications.

## 9.5. Funding

Some of the strategies and actions in this CAP can be done with existing COBI staff and resources while others will require new funding. These investments are motivated by the goal of avoiding the costly long-term consequences of inaction. The actions in this CAP also align with the Island's Comprehensive Plan; implementing these actions will have benefits well beyond climate mitigation or adaptation.

Funding for the implementation of CAP actions will need to come from within COBI's budget, external grants, and new revenue sources. The annual COBI budget must signal and support the City's commitment to climate action. The table below summarizes ideas from the recent publication *Playbook 1.0: How Cities Are Paying for Climate Resilience.*[95] Not all the actions can be implemented immediately. The CAP identifies the highest-priority actions and the Council and COBI staff will work to fund implementation of those actions first. It will also be important to anticipate and take advantage of windows of opportunity when costs are lower (e.g., during design and construction rather than after). Some actions, such as energy efficiency retrofits, can lead to significant savings for COBI operations; these savings could be allocated to a fund for reinvestment into other mitigation and adaptation actions.

**Playbook 1.0 ideas for financing**
**(Plastrik, Coffee & Cleveland, 2019)**

- **Generate Local Revenue.** Produce revenue for government climate-resilience public infrastructure by taxing local property owners and charging utility ratepayers.
- **Impose Land-Use Costs.** Adopt land-use and building regulations and policies that place undetermined future resilience-building costs on property owners and developers, rather than on government.
- **Embed Resilience Standards into Future Infrastructure Investments.** Ensure that all future capital spending for public infrastructure will be designed to strengthen climate resilience as much as possible.
- **Leverage Development Opportunities.** Link resilience-building projects with real estate development opportunities to generate public-private partnerships that invest in both public infrastructure and private development.
- **Tap State Government.** Mine existing state programs, or seek to modify them, to obtain funds for local climate-resilience efforts.
- **Pursue Equity in Resilience.** Factor social and economic equity into funding and financing actions by serving economic development, housing, and other needs while investing in climate resilience.

**Strategy D.1** Identify costs and funding opportunities for CAP implementation.

Priority Actions

- 9.D.1.a. Develop cost estimates for the highest priority CAP actions and staffing requirements and list potential funding sources (in year 1).
- 9.D.1.b. Include a description in the City Manager's proposed budget of existing and proposed projects that relate to CAP strategies and actions. See Section 8 Community Engagement Action 8.C.1.c.

# Section 10: Individual Actions

## Section 10: Individual Actions - What can we each do to make a difference?

### 10.1. Participate in Community Climate Action

- Attend community discussions, forums and events about climate change.
- Let City Council members know that addressing climate change is imperative and articulate what you think should be prioritized.
- Vote for candidates and issues that help address climate change.
- Talk with neighbors about climate resilience and emissions reductions.
- Start conversations in your schools, faith groups, and community groups about climate action.
- Support implementation of the updated Comprehensive Plan's climate smart elements.
- Attend community meetings (e.g., governmental, community group, homeowners' associations) and ask climate questions to better understand and act on the vulnerabilities and responsibilities of our community in relation to climate change.
- Support climate curriculum in our schools so we can become knowledgeable citizens about the issue of climate change--its problems and solutions.

### 10.2. Reduce Individual Energy Use

- Get an energy audit to find ways to increase energy efficiency at home and at work. Learn about rebates. Call PSE Energy Advisor at 1 800 562-1483.
- Install energy conserving appliances and fixtures, such as on-demand tankless water heaters, higher energy efficiency Energy Star appliances, and LED light bulbs.
- Install energy efficient electric heat pumps, water heaters, dryers, stoves and more.
- Voice support for City policies and proposed code changes that reduce greenhouse gas emissions and help reduce climate change risks.
- Install solar power and storage at your home or business.
- Replace a wood-burning fireplace with an efficient electric system (such as a heat pump).
- Install alternatives to air conditioning when renovating your home or business.
- Use energy efficient lights (including holiday lights) and reduce the amount of time they are on.
- Use local, sustainable, carbon neutral building materials where possible.
- When purchasing, remodeling or building a home or commercial building, choose a smaller building footprint.
- Use a clothes line instead of a dryer.
- Improve insulation in your house or business.

### 10.3. Reduce My Waste

- Reduce your food waste.
- Reduce your meat and dairy consumption and choose more locally produced foods to reduce your climate impact.
- Compost waste in your backyard or use Bainbridge Disposal compost pick-up service.
- Review and follow Bainbridge Disposal guidelines for what is recyclable, and use that information to guide packaging choices when possible.

- Fix things that are broken instead of buying new. Fix-it-Fairs are coming to Kitsap County!
- Use the Hazardous Products Center and bulky item pick-up programs to properly dispose of old refrigerators, e-waste, and air-conditioning units. Go to https://www.kitsapgov.com/pw/Pages/HHWFacility.aspx for more information.
- Talk with a contractor about alternatives to traditional building demolition, such as relocation, deconstruction, and salvage.
- Buy used, borrow or reuse instead of buying new. Use organizations such as Bainbridge freecycle, BI Online Yard Sale, Buy Nothing Bainbridge, Rotary Auction, The Bainbridge Library of Things (coming soon!)
- Support efforts to reduce and limit single-use disposable plastics.
- Bring your own coffee cups, containers (for bulk foods and produce) and grocery bags.
- Select options with less packaging, then reuse packaging and wrapping paper.

## 10.4. Reduce Individual Water Use and Take Steps to Protect Our Natural Resources

- Conduct a water audit at your home, and replace inefficient toilets and fixtures.
- Reduce your household's water use.
- Consider efficient alternatives to traditional water heaters, such as electric heat pump or solar thermal hot water heaters.
- Install a rain barrel or cistern to harvest rainwater for outdoor use.
- Explore grey water reuse/recapture.
- Use local sustainable building materials.
- When landscaping, select low impact, water efficient, native plants.
- Avoid creating impermeable surfaces around your house.
- Support City policies that encourage creative solutions to water conservation, such as a green building code that allows for greywater reuse or alternatives to traditional sewering.

## 10.5. Reduce Use of Internal Combustion Vehicles

- Increase the number of trips you make by mass transit, carpooling, walking, or biking.
- Reduce the number of airplane flights by utilizing telecommuting technologies and take direct flights as takeoff and landing utilize the most fuel.
- If a traditional bike is not appropriate for you, use an electric bike instead of a car for your commute.
- Organize a "walking school-bus" to walk a group of kids to school, seek out carpools for getting to after-school activities, discourage parent drop off and pickup, and encourage high school students to use the school bus, bike or walk.
- Delay or forgo your next purchase of a new vehicle, if it's possible to get more life out of your current car; or stop using one.
- When you decide to make a vehicle purchase, select the best fuel efficiency with an electric or hybrid vehicle.
- Support centrally located development that creates vibrant, higher density, mixed-use areas to reduce the need for driving.

- Make commuting by bike or walking a part of your regular routine, and have flashlights, reflective gear, and raingear handy.
- Shop locally and support local businesses to reduce your transportation footprint.

## 10.6. Reduce Your Vulnerability to Climate Change and Create a Climate Savvy Community

- Employ FireWise and other fire protection measures around your home and business.
- Landscape and design your property for drier summers and wetter winters.
- Plant a garden, and/or encourage the creation of community gardens on public and private lands including school campuses, City lands, and church properties.
- Evaluate all projects (development, business design, property acquisition) with a Climate Change Adaptation Checklist to understand and reduce your risk.
- Use passive heating and cooling to ensure functionality, reduce energy costs and eliminate greenhouse gas emissions.
- Read the Bainbridge Island Climate Impact Assessment to learn more about how to reduce your risk of specific climate stresses for specific areas of interest such as how sea level rise might impact your property.

# Appendix A: Priority Actions

## Section 2: GHG Inventory: Goals, Priority Actions, Milestones and Timelines

**Initiate Action**: Light Green

**Complete Action**: Dark Green

**Implement Action**: Blue

| Section | Action # | Description | Milestones | 2020 | 2021 | 2022 | 2023 | 2024 | 2025-2030 | 2031-2045 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Goal A: Implement a GHG emission tracking plan to monitor the CAP GHG emissions reduction goals** | | | | | | | | | | |
| **GHG Inventory** | **2.A.1.a** | COBI will work with the CCAC to improve the accuracy and site-specificity of data for GHG emission categories that are currently based on regional models (particularly vehicles and air travel). | Identify possible avenues to collect more local data for next inventory and start local data collection | | | | | | | |
| **GHG Inventory** | **2.A.2.a** | COBI will complete the next GHG emissions inventory by 2022 for the year 2021. Complete the next GHG emissions inventory for the year 2025 by 2026 and then complete a GHG emissions inventory every 5 years thereafter. | Begin next GHG inventory and then every 5 years | | | | | | | |
| **Goal B: Re-evaluate the forest sequestration analysis** | | | | | | | | | | |
| **GHG Inventory** | **2.B.1.a** | COBI, working with the CCAC, will approach academic institutions for assistance to plan more rigorous analysis methods, including ground-truthing of tree inventories. Collaborations may include student apprenticeships, student thesis research opportunities, or collaborative research grant proposals. Consider also joint studies with BILT. | Discuss possible strategies at CCAC meetings and decide on action. | | | | | | | |

## Section 3: Energy: Goals, Priority Actions, Milestones and Timelines

**Initiate Action**: Light Green
**Complete Action**: Dark Green
**Implement Action**: Blue

| Section | Action # | Description | Milestones | 2020 | 2021 | 2022 | 2023 | 2024 | 2025-2030 | 2031-2045 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Goal A. Increase energy conservation and efficiency throughout the planned and existing built environment, including customer-owned generation.** | | | | | | | | | | |
| **Energy** | **3.A.1.a** | All COBI projects (e.g., Police Station, WWTP improvements) adopt requirements to maximize energy efficiency and reduce total energy demand whenever feasible (e.g., variable frequency drives in HVAC systems, heat recovery systems, and dedicated outdoor air systems). | Council accepted terms | | | | | | | |
| **Energy** | **3.A.1.b** | Work with PSE to: 1) raise awareness about existing rebate and assistance programs that will increase access to energy conservation and efficiency programs, focusing on low-income households and nonprofit organizations; and 2) explore creating new incentive/rebate programs. | Establish new programs and raise awareness of existing programs. | | | | | | | |
| **Energy** | **3.A.2.a** | Establish and use the Green Energy and Building Fund to provide incentives to building owners and residents to increase electrification conversions and battery storage and to assist in energy audits for residential home projects, including affordable housing (e.g., install energy conservation measures, provide financial incentives for existing building owners to transition from propane, fuel oil, and wood stoves to all electric buildings). | Development of committee and eligibility and scoring criteria | | | | | | | |
| **Goal B. Eliminate carbon-based energy sources from all energy sectors.** | | | | | | | | | | |
| **Energy** | **3.B.1.a** | Work collaboratively with PSE, via the PSE Franchise agreement update and other mechanisms, to move towards a 100% carbon-free electrical supply, preferably sooner than the Washington State mandated goals. | Begin to compile relevant options/approaches and complete by 2021 | | | | | | | |

| Section | Action # | Description | Milestones | 2020 | 2021 | 2022 | 2023 | 2024 | 2025-2030 | 2031-2045 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Energy** | **3.B.1.b** | Work with PSE and others to develop incentive programs to increase installation of renewable energy and passive photovoltaic (PV) solar, wind, or other technologies on new and existing buildings. | Begin to compile relevant options and approaches | | | | | | | |
| **Energy** | **3.B.1.c** | Adopt a policy that prohibits propane, fuel oil, and wood stoves as the primary energy source for all new municipal, commercial, industrial, and residential buildings and in renovations and additions over a certain size. | All new buildings all electric | | | | | | | |
| **Energy** | **3.B.1.d** | Develop incentives for existing commercial, industrial, and residential buildings to replace propane, fuel oil, and wood stoves as their primary heating sources. | Program developed and implemented. | | | | | | | |
| **Energy** | **3.B.2.a** | Develop and hold trainings/workshops for Island and neighboring communities' builders, contractors, architects, and homeowners that can help Bainbridge Island to implement the fuel-switch from carbon-based to electrification of the building stock. | Work with Green Building Task Force to develop trainings and workshops. | | | | | | | |

**Goal C. Create energy self-sufficiency for emergency preparedness and increase energy infrastructure reliability and resilience in light of changing climate.**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Energy** | **3.C.1.a** | Work with PSE to develop a local program to encourage homeowners, businesses, and other entities like BISD, BIMPRD, and BIFP to acquire customer-owned generation like roof-top solar and small wind turbines as well as customer-owned storage. | Local program established. | | | | | | | |
| **Energy** | **3.C.1.b** | Research and develop microgrids for community Bainbridge Disaster Hubs (City Hall, Seniors Center, Bainbridge Island School District (BISD), Island Wood) in partnership with PSE and Bainbridge Prepares and possibly using Washington Clean Energy Fund (CEF) funding. | Half of the hubs resilient | | | | | | | |
| **Energy** | **3.C.2.a** | Work with partners (e.g., PSE) to determine the feasibility of developing large-scale neighborhood microgrids with customer-based storage or utility-scale energy storage, or a combined heat and power biodigester sited adjacent to the community pool. | Strong examples established and documented | | | | | | | |

## Section 4: Transportation: Goals, Priority Actions, Milestones and Timelines

**Initiate Action**: Light Green

**Complete Action**: Dark Green

**Implement Action**: Blue

| Section | Action # | Description | Milestones | 2020 | 2021 | 2022 | 2023 | 2024 | 2025-2030 | 2031-2045 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Goal A. Reduce motorized vehicle miles traveled per capita** | | | | | | | | | | |
| **Transportation** | **4.A.1.a** | Through the Sustainable Transportation Planning Process and other means, develop an ambitious plan to create networks of pathways required to achieve a substantial mode shift to biking and walking, including separated or protected biking and walking lanes | Work with STTF to develop plan | | | | | | | |
| **Transportation** | **4.A.1.b** | Increase City staff time or hire a consultant to enhance the City's capacity to identify and apply for sources of funding (such as federal grants for Safe Routes to Schools and public private partnerships for the needed infrastructure). | Identify sources of funds for position and advertise. | | | | | | | |
| **Transportation** | **4.A.1.c** | Explicitly consider climate change mitigation (e.g., greenhouse gas reductions) when evaluating options as the City develops its Sustainable Transportation plan. | Ensure climate change is considered as part of STTF. | | | | | | | |
| **Transportation** | **4.A.2.a** | Require incorporation of non-motorized transportation options into all new development, e.g., by including sidewalks or pedestrian trails linked to existing and planned trail/sidewalk networks; incorporating bicycle lanes and trails; etc. | Incorporate non-motorized requirements in to permitting process. | | | | | | | |
| **Transportation** | **4.A.2.b** | Require all new development, and improve existing connections between developments, to accommodate non-motorized and public transit transportation options (including incorporation of bus shelters and other amenities). | Incorporate non-motorized requirements in to permitting process. | | | | | | | |

| Section | Action # | Description | Milestones | 2020 | 2021 | 2022 | 2023 | 2024 | 2025-2030 | 2031-2045 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Transportation** | **4.A.3.a** | In consultation with Kitsap Transit, develop a robust marketing/outreach/educational program to inform Island residents and those who traverse the Island from outside about public transit options, including park and rides (including, for example, information for Island visitors on bus/transit routes & options). | Work with Kitsap Transit to develop plan. | | | | | | | |
| **Transportation** | **4.A.4.a** | Work with BISD on measures to discourage private-vehicle drop-offs and pick-ups, encourage car-pooling, biking and walking and promote greater use of school buses. | Develop plan with BISD | | | | | | | |
| **Goal B. Reduce emissions from motorized transportation, including through electrification of all modes (on-road, off-road, and ferries) and encourage reduction in air travel.** | | | | | | | | | | |
| **Transportation** | **4.B.1.a** | Transition COBI's fleets to primarily electric vehicles and using biofuels where electric vehicles are not an option and encourage other Bainbridge Island taxing districts to also develop a plan. | Develop long-term strategy for transitioning to all electric fleet. | | | | | | | |
| **Transportation** | **4.B.2.a** | Evaluate current code to see if need to modify to increase the number of EV-charge stations ready for all new development, major renovations and that multifamily units and commercial development include EV charging infrastructure. | Establish requirements in permitting for EV charging stations. | | | | | | | |
| **Transportation** | **4.B.2.b** | Install additional charging stations in commercial centers, including Island Village, Coppertop, Lynwood Center. | Work with PSE and others to add charging stations. | | | | | | | |
| **Transportation** | **4.B.3.a** | Coordinate with Washington State Ferries, PSE, and other entities as necessary to evaluate the need for, and feasibility of, establishing charging infrastructure on the Island to service ferries. | Develop plan with WSF to ensure infrastructure for charging ferries. | | | | | | | |

| Section | Action # | Description | Milestones | 2020 | 2021 | 2022 | 2023 | 2024 | 2025-2030 | 2031-2045 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Transportation** | **4.B.4.a** | Adopt a city-wide anti-idling ordinance that includes an enforcement component and work with the WSF and State Patrol to reduce idling at the ferry parking lots. | Develop ordinance for city-wide anti-idling and with WSF. | | | | | | | |
| **Transportation** | **4.B.5.a** | Work with partners (e.g., Climate Action Bainbridge and Puget Sound Clean Air Agency) to provide public information on benefits of reducing air travel. | Hold a forum on air travel in collaboration with the Climate and Energy Forum. | | | | | | | |
| **Transportation** | **4.B.5.b** | Work with service providers to help our community develop and maintain the digital infrastructure it needs to enable more virtual meetings. | Develop plan with UAC on improving digital infrastructure on the Island. | | | | | | | |

## Section 5: Buildings: Goals, Priority Actions, Milestones and Timelines

**Initiate Action**: Light Green

**Complete Action**: Dark Green

**Implement Action**: Blue

| Section | Action # | Description | Milestones | 2020 | 2021 | 2022 | 2023 | 2024 | 2025-2030 | 2031-2045 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Goal A: Reduce GHG emissions from all municipal, commercial, industrial and residential buildings.** | | | | | | | | | | |
| **Buildings** | **5.A.1.a** | Adopt Green Building Task Force recommendations on green building practices and standards for all new municipal, commercial, industrial and residential building and all renovations and additions over a certain size | Green Building Task Force recommendations to adopt green building standards for all new buildings | | | | | | | |
| **Buildings** | **5.A.1.b** | Require all new and renovated buildings to apply the EcoAdapt Climate Change Adaptation Certification Tool , or similar tool, to identify and avoid climate risks as part of the permitting process. | Apply tool to all building projects | | | | | | | |
| **Buildings** | **5.A.2.a** | Develop training and outreach programs to provide technical assistance to developers, contractors, architects, landscape architects, city employees, and homeowners on green building that includes the cost/benefit to occupants of green building, use of reused and recycled materials, and the health benefits from green buildings to occupants. | Work with Green Building Task Force and others to develop program and implement. | | | | | | | |
| **Buildings** | **5.A.2.b** | Work with the BISD, BIMPD, and BIFD to ensure any new buildings they build consider green building standards and practices adopted by COBI. | Initiate discussions. | | | | | | | |
| **Goal B. Establish procedures to ensure buildings and infrastructure are protected from climate change impacts (e.g., higher precipitation, sea level rise, and increased temperatures).** | | | | | | | | | | |
| **Buildings** | **5.B.1.a** | As recommended by the 2019 CCAC Report on Sea Level Rise, conduct a systematic, high-resolution analysis of exposure of City assets to sea level rise; | Complete an analysis for all COBI assets at risk from sea level rise. | | | | | | | |

| Section | Action # | Description | Milestones | 2020 | 2021 | 2022 | 2023 | 2024 | 2025-2030 | 2031-2045 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Buildings** | **5.B.1.b** | As recommended by the 2019 CCAC Report on Sea Level Rise create a prioritized list for addressing COBI assets at high risk of sea level rise (e.g., roadways that are expected in the coming decades to be sufficiently flooded that they will not be functional for motorized transit.) | Complete a prioritized list for COBI assets. | | | | | | | |
| **Buildings** | **5.B.1.c** | As recommended by the 2019 CCAC Report on Sea Level Rise integrate sea level rise analysis into all City planning to identify and avoid or minimize risk to planned infrastructure and development. | Integrate sea level analysis into City planning decisions as part of the SMP updates. | | | | | | | |
| **Buildings** | **5.B.2.a** | Conduct a high-resolution analysis of all shoreline properties to inform landowners of exposure to sea level rises, make this information widely available for property owners to use in decision-making, and provide guidance on possible solutions and regulatory requirements. | Initiate analysis and complete for SMP updates | | | | | | | |
| **Buildings** | **5.B.2.b** | COBI integrates sea-level rise analysis into all City permitting to help applicants identify and avoid or minimize risk to existing infrastructure and land uses and planned infrastructure and development from sea level rise or other climate impacts. | Complete an analysis of vulnerable properties and hold community workshops. | | | | | | | |
| **Buildings** | **5.B.2.c** | COBI hosts community workshops on climate impacts, how they might impact buildings, and how to prepare buildings for these impacts. | Initiate and host workshops. | | | | | | | |

## Section 6: Natural Environment: Goals, Priority Actions, Milestones and Timelines

**Initiate Action**: Light Green
**Complete Action**: Dark Green
**Implement Action**: Blue

| Section | Action # | Description | Milestones | 2021 | 2022 | 2023 | 2024 | 2025 | 2026-2030 | 2031-2045 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Goal A. Steward Bainbridge Island's natural resources to function as healthy, resilient ecosystems that can continue to provide multiple ecological functions including providing habitat, maintaining the hydrologic cycle, and storing carbon in the face of the added stresses of climate change.** | | | | | | | | | | |
| **Natural Env.** | **6.A.1.a** | Ensure that the City is using the most appropriate, relevant and recent data and information about natural resources, climate change and other associated parameters in decision-making. If data sources are missing, identify how to obtain needed information. | Partners identified, once data gaps identified, timeline for addressing data gaps | | | | | | | |
| **Natural Env.** | **6.A.1.b** | Develop and adopt a comprehensive strategy for addressing invasive species on City lands to reduce these significant stressors on ecosystems. | Partners identified | | | | | | | |
| **Natural Env.** | **6.A.1.c** | Evaluate all COBI land acquisition and development decisions for City lands or in City review of private development using the EcoAdapt Climate Change Adaptation Certification Tool (or other similar tool) to ensure decisions are climate informed. | At time of inventory updates, conduct permit and development review to evaluate compliance | | | | | | | |
| **Natural Env.** | **6.A.2.a** | Work with COBI arborist and partnering community groups, as appropriate, to create a preferred list of tree and plant species expected to be favored by climate change projections for use in City planning and restoration efforts. This list can also be used to advise local landowners and be applied to climate savvy development. | Completed list that is updated at regular intervals. List is available on City website, from partnering organizations, and as a brochure | | | | | | | |
| **Natural Env.** | **6.A.3.a** | Conduct an assessment of stocking densities on COBI owned lands and evaluate forest health improvements and wildfire risk reduction. | All City owned lands have been assessed and plans for management established and funded | | | | | | | |

| Section | Action # | Description | Milestones | 2021 | 2022 | 2023 | 2024 | 2025 | 2026-2030 | 2031-2045 |
|---|---|---|---|---|---|---|---|---|---|---|
| Natural Env. | 6.A.3.b | Ensure that COBI policies prioritize wildfire risk reduction in proximity to homes consistent with FireWise guidelines and strengthen wildfire risk-reduction design guidelines for Island construction (residential and business) using approaches such as reviewing new subdivision standards for opportunities to integrate wildfire risk reduction. | Code review and update to ensure design guidelines are up to date and strengthened to reduce wildfire risk | | | | | | | |
| **Goal B. Protect and maintain the integrity of our Island's surface and groundwater resources in the face of climate change.** | | | | | | | | | | |
| Natural Env. | 6.B.1.a | Incentivize and maximize opportunities for incorporating water conservation features in Green Design and Building Codes (see Buildings Section Goal A). | Code review and update to ensure design guidelines are up to date and strengthened to identify water conservation opportunities | | | | | | | |
| Natural Env. | 6.B.1.b | Continue a robust surface water monitoring program that can identify trends in streamflow and water quality to inform adaptive management to protect stream health and integrate into monitoring climate change-sensitive parameters as appropriate. | SW monitoring program is reviewed and identified climate parameters are added to ongoing monitoring | | | | | | | |
| Natural Env. | 6.B.2.a | Complete and implement COBI's Groundwater Management Plan, including incorporation of expected changes to groundwater inputs and outputs under climate change. | Completed GW management plan has been adopted by the City | | | | | | | |
| **Goal C. Steward our Island's shorelines to allow for resilience in the face of climate impacts including sea level rise** | | | | | | | | | | |
| Natural Env. | 6.C.1.a | Ensure that planning for sea level rise on the timeframe relevant to any proposed action's lifetime impact is explicitly incorporated into the SMP, including incorporating capacity for inundation and change to natural shoreline features, such as planting for shifting vegetative communities, infrastructure movement or abandonment to adapt to habitat loss at shoreline. | SMP review and update has explicitly incorporated sea level rise into document | | | | | | | |

**Goal D. Support an agricultural system that prioritizes climate change resilience, local food production, and ecosystem services including soil carbon storage and water management.**

| | | | |
|---|---|---|---|
| **Natural Env.** | **6.D.1.a** | Work collaboratively with individual farmers and community groups including Friends of the Farms, Master Gardeners, and Kitsap Conservation District to identify and promote agricultural policies that increase carbon storage (e.g., soil sequestration) and hydrologic integrity, and reduce emissions including permaculture and reduced energy inputs (e.g., fertilizer, fossil fuels). | Code review and update to ensure design guidelines are up to date and strengthened to support sustainability of agricultural activities |
| **Natural Env.** | **6.D.2.a** | Work collaboratively with Kitsap Conservation District to offer technical resources to livestock owners for manure management. Consider development of a memorandum of understanding and funding to support additional manure management efforts. | Manure management is written in to City Code |

## Section 7: Waste: Goals, Priority Actions, Milestones and Timelines

**Initiate Action**: Light Green

**Complete Action**: Dark Green

**Implement Action**: Blue

| Section | Action # | Description | Milestones | 2020 | 2021 | 2022 | 2023 | 2024 | 2025-2030 | 2031-2045 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Goal A. Reduce Island residential, commercial, and industrial waste generation** | | | | | | | | | | |
| **Waste** | **7.A.1.a** | Centralize purchasing within COBI to increase consistent adherence to COBI's sustainable procurement policy. | Purchasing centralized and review of policy to ensure adherence. | | | | | | | |
| **Waste** | **7.A.2.a** | Adopt an ordinance to reduce the use of single-use plastic food service ware, including utensils and take-out containers, by all Island food service establishments. | Adopt ordinance and implement | | | | | | | |
| **Waste** | **7.A.3.a** | Educate the community about ways to reduce food waste and promote opportunities for viable food to get to those who need it, including food banks and neighborhood giving. | Host a workshop with Climate and Energy Forum on food and food waste. | | | | | | | |
| **Goal B. Increase diversion of waste from the landfill** | | | | | | | | | | |
| **Waste** | **7.B.1.a** | Work with BD to offer curbside compost pickup for all commercial facilities as a weekly service. | Formal discussions with BD and work to develop plan. | | | | | | | |
| **Waste** | **7.B.1.b** | Require that all commercial entities participate in the green waste program once established and participate in recycling. | Participate within 3 months after service established and ordinance passed | | | | | | | |
| **Waste** | **7.B.2.a** | Require, and where appropriate provide incentives for, the reduction, collection and diversion of construction and demolition waste. Seek specific recommendation from the City's Green Building Task Force on this action. | Consultant with the Green Building Task Force on timeline. | | | | | | | |
| **Goal C: Optimize collection and disposal systems to minimize GHG emissions** | | | | | | | | | | |
| **Waste** | **7.C.1.a** | Evaluate and support opportunities to better accommodate on-Island or more local processing of green waste (e.g., through amendments to municipal code and allowed uses). | Location for infrastructure up and running. | | | | | | | |

**Goal D: Ensure that any new waste-related infrastructure, such as transfer stations and composting facilities, are not sited in current or future hazard areas.**

| | | | | |
|---|---|---|---|---|
| **Waste** | **7.D.1.a** | Apply the EcoAdapt Climate Change Adaptation Certification Tool to any new waste-related infrastructure projects. | Certification applied to any new waste-related infrastructure projects | |

## Section 8: Community Engagement: Goals, Priority Actions, Milestones and Timelines

**Initiate Action**: Light Green

**Complete Action**: Dark Green

**Implement Action**: Blue

| Section | Action # | Description | Milestones | 2020 | 2021 | 2022 | 2023 | 2024 | 2025-2030 | 2031-2045 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Goal A: Increase the Bainbridge community's awareness and knowledge about current and future climate change related impacts and ways to reduce those impacts.** | | | | | | | | | | |
| **Community Engagement** | **8.A.1.a** | Develop a dedicated climate change webpage on the City's website including links to climate mitigation/adaptation resources on the CCAC website and make the CAP widely and easily available to all in the community on-line and in print formats (copies at the library along with GHG inventory, Sea Level Rise analysis and Bainbridge Island Climate Impact Assessment that will be updated periodically by members of the CCAC). | Within one month of CAP approval and maintained thereafter | | | | | | | |
| **Community Engagement** | **8.A.1.b** | Consult with the Equity Task Force to ensure outreach efforts and education materials are designed and implemented to reach all segments of the Bainbridge community. See also Section 9: Implementation Action 9.B.1.a. | Completion of outreach materials and materials distributed. | | | | | | | |
| **Community Engagement** | **8.A.2.a** | Include a climate change tip of the [month] as a regular feature in the City Manager's report and on social media. | Begin late 2020 and continuing thereafter | | | | | | | |
| **Goal B. Inspire action across the community and partner with local and regional organizations to take meaningful climate change mitigation and adaptation actions.** | | | | | | | | | | |
| **Community Engagement** | **8.B.1.a** | Declare a climate emergency. | Completed | | | | | | | |
| **Community Engagement** | **8.A.1.b** | Be a regional leader in recognizing the important role that municipal governments can play in taking action to respond to climate change. | Initiate 2020 and ongoing | | | | | | | |
| **Community Engagement** | **8.B.1.c** | Work cooperatively with other jurisdictions in Kitsap and King Counties (e.g., Poulsbo, Silverdale, Kingston, Bremerton, Seattle) and throughout Puget Sound to find regional solutions including mitigation and adaptation actions that would benefit from economies of scale or the sharing of lessons learned. | Initiate in 2021 and ongoing thereafter | | | | | | | |

| Section | Action # | Description | Milestones | 2020 | 2021 | 2022 | 2023 | 2024 | 2025-2030 | 2031-2045 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Community Engagement** | **8.B.2.a** | Host workshops with hands-on demonstrations for community members to learn how to take specific actions (e.g., building a rain barrel, dehydrate food as part of emergency preparedness, build and use compost bin, use an electric bike, construct a rain garden, assemble an emergency kit, install less resource intensive landscaping). | Begin early 2021 and ongoing thereafter | | | | | | | |
| **Community Engagement** | **8.B.2.b** | Host events for community project(s) to bring people together to work towards mitigation and adaptation (e.g., building a community rain garden, working on a trail, making signs for bike/pedestrian routes, pulling ivy, planting climate resilient plants, and constructing community pea patch). | Begin early 2021 and ongoing thereafter | | | | | | | |

**Goal C. Empower and prepare COBI, Bainbridge Island residents, and Bainbridge Island businesses for climate impacts and emergencies.**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Community Engagement** | **8.C.1.a** | In coordination with the COBI attorney, review existing laws, regulations and policies and revise as needed by asking the following sorts of questions.<br>• Are current City laws adequate to require, or at least encourage, GHG emission reductions from City regulated or endorsed activities as well as from individual activities?<br>• Do they provide sufficient authority/flexibility to respond to impacts and emergencies?<br>• Are recommended mitigations/adaptations actions allowed? | Complete review by Spring 2021 and revise authorities as needed by 2022 | | | | | | | |
| **Community Engagement** | **8.C.1.b** | Hire a COBI Climate Mitigation/Adaptation Officer to coordinate activities between and among the various city offices, inspect for compliance with climate related code compliance, and serve as a City staff liaison with the CCAC. | Hire by end of 2020 retain permanent staff in this position thereafter | | | | | | | |
| **Community Engagement** | **8.C.1.c** | Include Climate Change related expenditures in the City budget for education, code compliance, mitigation and adaptation action items identified in the CAP. | Include in 2021 budget if possible and maintain sufficient budget thereafter | | | | | | | |

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| **Community Engagement** | **8.C.2.a** | Work with Bainbridge Prepares, the Bainbridge Island Fire Department, and others, to establish equitable access to community centers for recharging generators and cell phones during outages, and providing emergency food/water/filtered air during poor air quality due to fires across the west. Develop strategies to provide these services during a pandemic or other emergency that does not allow for close quarters. | Initiate 2021, complete by 2022 and maintain thereafter | |

## Section 9: Implementation: Priority Actions, Milestones and Timelines

**Initiate Action**: Light Green

**Complete Action**: Dark Green

**Implement Action**: Blue

| Section | Action # | Description | Milestones | 2020 | 2021 | 2022 | 2023 | 2024 | 2025-2030 | 2031-2045 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Implementation** | **9.A.1.a** | Confirm COBI staff person to liaise with the CCAC until a dedicated Climate Change Mitigation/Adaptation Officer is hired. See Section 8, Action 8.C.1.b. | Confirm climate liaison among current staff | | | | | | | |
| **Implementation** | **9.A.1.b** | Identify a COBI staff person in each department who will provide information to the City staff liaison (Climate Change Officer) identified in Action 9.A.1.a. This person will provide department-specific information on timelines for completing actions and report on progress on CAP actions led by that department. | Work with Climate Change Officer | | | | | | | |
| **Implementation** | **9.B.1.a** | Consider and minimize the potential for unintended and/or inequitable impacts from each action prior to implementation. | Develop a decision tool that can be used to evaluate actions in the CAP. | | | | | | | |
| **Implementation** | **9.C.1.a** | Produce a CAP progress report every year that includes a review of actions undertaken during the year and additional actions needed (including those currently listed as "other" rather than "priority" actions) to meet the CAP goals for reducing GHG emissions and preparing the Island for climate impacts. | Yearly report | | | | | | | |
| **Implementation** | **9.C.1.b** | Update the GHG emissions inventory every three to five years. | Begin next GHG inventory and then every 5 years | | | | | | | |
| **Implementation** | **9.C.1.c** | Update the CAP every five years. | Update 2025 and then every 5 years after | | | | | | | |
| **Implementation** | **9.C.1.d** | Prior to the five-year CAP update, evaluate the effectiveness of implemented actions in terms of progress towards goals and targets, in order to inform adaptive management. Consider creating a dashboard | Develop dashboard of metrics to assist in evaluating progress. | | | | | | | |

| | | | | |
|---|---|---|---|---|
| | | of key metrics as a tool for the evaluation and associated communications. | | |
| **Implementation** | **9.D.1.a** | Develop cost estimates for the highest priority CAP actions and staffing requirements and list potential funding sources (in year 1). | Initiate development for immediate actions and then for priority actions in CAP. | |
| **Implementation** | **9.D.1.b** | Include a description in the City Manager's proposed budget of existing and proposed projects that relate to CAP strategies and actions. | Complete for each budget. | |

# Appendix B: Comments from Community Workshops

## 3.1 Energy

**First Session Dec 7 10-12 PM City Hall**

**Facilitator: David McCaughey Note Taker: Mike Kelly and Steve Johnson**

Input from approximately 20 people and finally resulted in a smaller group of 5 people for a group discussion

Broad comments:

- What's the most common energy source used for electricity?
    - PSE is now 59% fossil fuels for their entire load
- SB 5116 sets out to decarbonize our electric grid by 2025
- Wind generation on Bainbridge?
    - - not a good wind resource
- Low hanging fruit is using less energy - have to cut our individual usage in half
- Fewer outdoor lights
    - Eliminate Christmas lights or limit the time they can be on
- Should we be thinking about a specific direction for reducing energy consumption? Is there research out there?
- Solar Perovskites - alternative to silicon PV. Creates solar panels that are thinner
    - Better solar - only been on the market for a short term
- Local energy production - community solar projects like what Joe has done for Sakai and the roof of City Hall. Got a lot of roofs on BI
- If home energy is low efficiency - advice on how to improve them
- What does efficiency mean for individuals - how do you measure that? Where do people fit?
- What's the role of offsets until we can get to renewables?
- Measuring the electrical reduction - should you count the agreement signed in 2013 regarding shutting down Coalstrip?
- Have to not overestimate reductions that we did (Scope 1; e.g. city controls what fuel their vehicles used)
- Require solar on all new construction on the Island - for those where it doesn't work, require investment in others
- Schools have solar capacity - should they have to implement them?
- Residential - need more obvious EE incentives
- All public funded buildings should have a fossil fuel reduction plan - we've done schools, we've done fire stations but don't even follow what's in our comp plan today. Make them all geo-thermal or solar powered or something
- For grants awarded by the City -
- Other jurisdictions (Seattle, Tacoma) have lower emissions - they are 100% clean energy. Seattle City Light is all Hydro and we are not.
- Starting negotiations with PSE
- Costs could be a big incentive - still new tech solar panels will cost less, only pay once a year. Even if it looks cheaper initially - will be cheaper in the long run.
- More public education on solar.
- Efficiency first
- Aggregate demand - we're a well to do community - represent the fact that there are a lot of people who want solar, group purchase option?
- How do you get the word out - tell everyone how cost effective it is
- Schools should request solar from PSE (RFI Q4 2019)

- Micro grids
- Demand management technology deployed across the Island
- Criteria for measuring is not based on reducing the amount of electricity - with electrical ferries, electric cars - electric usage will go up
    - Want green power
    - Not necessarily reducing electricity but making it carbon neutral
- Library and schools and fire department need to be role models on energy usage. Even though beyond City jurisdiction
- Electrified BI Transit system that is on a regular schedule during the day as opposed to erratic service for commuters only.
    - Have certain hubs they would run out of - Lynwood, Bay Hay, Battlepoint. Do a shorter commute on your end, have a reliable pickup
- Resurrect Repower Bainbridge concept of home energy audits

<u>Breakout Session:</u>
Goals

1. Energy efficiency first - before generating clean, reduce demand
    a. Least expensive
    b. Awareness is key
2. Decarbonize the energy you do generate
    a. PSE will be doing this because of state mandate
    b. Could we do it faster and not just rely on PSE
    c. Also have diesel, gasoline, propane that PSE is not responsible for
3. Resilience
    a. Brownouts, blackouts, subjection zone event, earthquake/fire
    b. What happens if you have no power - have elderly, sick, ADA for one reason or another

Within each bucket - what are the various ideas?

- CA is doing a great job of forecasting what may happen
- 8-year drought here - even though trees look green could have a real wildfire risk
- With PG&Es mandatory outages - need to look at undergrounding our wires to avoid sparks that trigger fires
- Could run closer to road so could have shoulder / pedestrian
- Cost is high - will take 10-15 years to do it - but cost of fires also very high
- Opportunity with the new lines PSE is proposing for reliability
- About half of the distribution system on BI is already underground
- Could UTC require undergrounding so it is part of the base cost.
- UTC would look at all the things they balance
- Climate impacts are going to play a larger role in regulatory decisions
- Local communities can set their own regulations for development - PSE infrastructure is a kind of development and some communities do require that. If those are the local rules, have to follow them.
- Opportunities for BI to work with PSE to do undergrounding projects on existing wires with a cost-sharing arrangement. That's available to communities now.
- Evaluate all projects to see where it makes sense to put things underground.

- If we don't think people will allow tree cutting to make a section more reliable, might make the choice to underground or harden the existing overhead system

- PSE to provide real-time price feedback.
- PSE tested out a time of use rate schedule. What they learned is people didn't change behavior much. If anything, some people paid more. A lot more capability today to monitor and adjust.
- One of the proposals is to make available more demand side management from PSE. More opportunities to control how energy is used and when, recognizing that they need to be things that the consumer will tolerate.
- Tiers for excessive users? Rates that are in place is what the commission if willing to accept
- Internet of Things - all energy using devices become smart devices. Looking at marginal spot cost.
- Will see newer applications try to drive how much energy is used when, not just how much is it costing but also to have a positive effect.
- Is there a role for a larger utility system demand management system that would be effective at reducing overall usage?
- Bringing in smart meters - a meter that could communicate two ways
- One advantage is PSE knows for certain that your house has no power
- Residents could take control back if needed
- Mostly need more wires
- Advanced metering infrastructure
- Not just the meters but also the infrastructure for transmitting information between meters and the utility.
- Receive points for using energy efficient measures - participating in demand management
- PR Idea - explain that the blackouts in CA are the crudest form of demand management. They are doing that because they have to. We don't want to get to that point on BI, so here's what we have to do now to avoid that….
- Term "battery" needs to be expanded to include all forms of energy storage (Thermal, Li batteries, Flow batteries (Vanadium))

**Second Session Dec 11 6:30-8:30 PM BHS Library**
**Facilitator: David McCaughey Note Takers: Jane Lindley and Steve Johnson**

Input from ~15 people and finally resulted in a smaller group of 5 people for a group discussion

<u>Broad comments:</u>
- Smart meters and Demand Management
- Carbon tax on all vehicles with MPG below 25 mpg
- Many "vacant homes" that are contributing to unnecessary kWh increases to the electric system, these are homes utilized as 2nd homes but have both lights and heating at high levels when vacant.
- All public buildings (schools, fire stations) to have solar PV (if properly sited and designed) and allow individuals to invest in these systems - community solar
- EV charging infrastructure for apartment buildings
- Encourage a "Home Share" program
- Better ventilation in homes - like heat exchangers

- Get an electric car with an inverter instead of a generator
- With increasing temps and lower H2O flows, be very scientific when analyzing dam removal (vs. emotional)
- Reduce tax-based energy emissions, increase income-based taxes
- Sidewalks
- Carbon tax increase on gasoline - to encourage conversion to electric
- Subsidize residential solar installs
- Group purchase of panels for residents to reduce capital costs
- Nuclear power - small scale plus in series
- Green Direct purchased for City operations
- Harnessing the heat released in the decompensation of organic matter?
- Develop solar infrastructure using Germany as a model
- Support for solar panels in the form of Community Solar (i.e. Harbor Square)
- Have community purchase programs to make it easier to purchase solar panels, batteries, electric cars and electric bikes
- Implementation of solar battery usage to phase out generators (charged during sunny months)
- Microgrids that would serve "Bainbridge Prepares" hub sites for warming/cooling sites
- Require smaller houses, demand public buildings follow State of WA standards (i.e. must be LEED)
- Bring back "Repower Bainbridge" with help from PSE
- Solar incentives
- Reduce fares on ferries for electric cars
- Harbor Square - Building Captains to implement warming/cooling center and community solar on roofs
    - Adaptive Load Management to allow for EV charging in similar buildings with common electrical infrastructure (condos, apartments)
- Contribute to a continental wide system of fast trains to reduce air travel
- Public Works projects - should encourage community sustainable development
- Lobby locally to be a test site/early adopter for electric driverless vehicle fleets
    - Proactively plan electric and parking infrastructure these vehicles
- Investing in sea-power (tidal, current)
- Solar panels on every appropriate roof-top/site

## 3.2 Transportation

**First Session 1: December 7th**
**Facilitator: Mike Cox  Note takers: Bobbie Morgan and Fran Korten**

There were six general categories of comments:
Pk-Parking (especially for bikes)
I - Infrastructure (for safe walking, biking)
BC - Behavior Change (including incentives, enforcement, education)
PS - Partnerships (with various agencies and businesses)
PL - Planning (City code)
F -Fuels

**PARKING**
- Have secure biking option for Park and Ride sites

- Provide convenient, safe bike parking at all businesses and schools (free)
- Provide ground mounts for bike parking

**INFRASTRUCTURE**
- Make bus stops safer
- Make biking and walking safer for all ages
- Prioritize biking and pedestrian improvements that connect well-traveled locations
- Establish more developed, safe routes to school throughout the Island
- Make it very clear where to pick up a bus (poor signage currently) and leverage __ to be more than commute trips
- In prioritization for bike/walk infrastructure, note populations based on #'s that use this, monitor kids and safety
- Bike lanes themselves must be safer ones
- Keep rural look and feel of transportation system
- Make walking, cycling comfortable, convenient and safe (protected but still direct)
- Make biking safer, shoulders, off road trails, lower speed limits for cars
- Walk-bike safety need to be targeted (i.e., charge parents to drop off kids)
- Create mobility hubs at neighborhood service centers to connect 'first and last mile"
- Trails are great if they can be direct
- People need safety and convenience

**BEHAVIOR CHANGE**
- Implement "library of things" to reduce off-Island trips and reduce deliveries
- Enforce "no-idling", especially at ferry, schools, municipal vehicles
- Consider charging for on-street parking
- Establish a baseline for car use on Island (count cars on roads)
- Incentivize EV use on Island
- Incentivize commuter trip reductions for employers (motivate)
- Create a website for ride-sharing and signed locations (a la San Juan Islands and Gulf Islands)
- Understand and educate parent about pick-up and drop-off kids at school (increased costs of driving to school)
- Fund via impact fees (increase) on development
- Encourage hitch-hiking (on-line approval of participants)
- Localize our lives (in context of higher education, travel for pleasure, family visits, etc.)
- Incentivize bus use by making car use expensive
- Utilize social media to build momentum for change
- Engage youth in relevant games, etc.
- Promote carbon offsets
- Incentivize telecommuting
- Use Public Service Announcements and publicity to promote these ideas
- Establish targets (specific: reductions of individual car use, etc.)
- Use tokens as rewards for positive transportation (i.e., Kitsap Transit gives them out for 'frequent riders')
- Encourage community events to promote clean ways of transit
- Incentivize employees for their travel
- Help people carpool to large public events

- Support local merchants to minimize off Island driving

**PARTNERSHIPS**
- Have BI Ride electric bus on regular schedule
- U-pass for Island (bus, ferry, etc.) with monetary incentive to make this cheaper
- Incentivize walk-ons at ferry and mobility hubs at neighborhood service centers
- Try to get City of Seattle to have 1st Ave bus back in service
- Raise the fee for cars on ferry and reduce for walk-on and bike
- Find ways to bring back essential local businesses (i.e., co-op?)
- Use tokens as rewards for positive transportation choices (i.e. Kitsap Transit 'frequent rider')
- Increase public transportation on weekends and evenings
- Amazing: use electric vehicles
- Provide public transportation especially to ferry, esp. weekends and broader geographic locations
- Promise to pressure airlines to go electric
- Create a local electric airport
- Engage schools in bike-walk planning (there is $!)
- Implement a 'library of things' to reduce off-Island trips and deliveries
- Encourage smaller ferries for various trips
- Make bus stops safer (i.e., locations)
- Fund grant writer to fund expansion of bike-walk infrastructure
- Work with Kitsap County to expand E-V infrastructure
- BI Ride to Silverdale 3x week

**PLANNING**
- Put a climate lens on all transportation projects
- Clarify 'single use' vehicles miles traveled (per capita)
- Clarify alternatives to include walking and biking
- Make pedestrians the focus of goals to show paradigm shift
- Take away levels of service (infrastructure) for cars
- Reduce speed limits for cars
- 1st and last mile connections to transit (i.e. mobility on demand, some examples around the country)
- Find sources to expand funding for walk/bike projects
- Raise priority of walkability on city projects
- Increase parking fees at ferry and increase cost to take car on ferry
- Make this plan concrete with clear targets and dates for completion
- Research best practices for transit in small, rural communities
- Don't encourage multiple cars by allowing/requiring multiple parking spaces per household (i.e., 3-car garages)
- Increase density in core to make transit more feasible
- Multi-modal LOS to fund improvements
- Prioritize pedestrians and cyclists in city street standards
- Integrate an equity lens in how we plan for transportation (what works for everyone not only those who can afford) Consider community assets, access, cost.
- Require EV charging for all new developments as well as bike parking and increased bike parking all over the Island (i.e., schools, make it covered…)

- Public transportation requires 4,500 people/square mile (we are only 850/square mile), so we need to find out if people want to pay for what it would take?
- Be mindful that not all planning should be anti-car: self-driving electric cars will help.

**FUELS**
- Include various kinds of non-pollution fuels (i.e. biofuel, etc.

**Second Session: December 11th, BHS Library**
**Facilitator: Derik Broekhoff Note taker: Sandy Spears**

Transportation ideas directly to CCAC member during the workshops

- Leverage non-motorized trails/sidewalks into or with one unified system
- Expand transit service during non-commuter times
- Start an electric bike ride share program

## 3.3 Buildings

**First Session: Saturday December 7th: City Hall**
**Facilitator: Jens Boemer Note Taker: Brian Anderson and Sandy Spears**

Suggestions climate mitigation and adaptation of buildings on Bainbridge Island
- In the BI carbon inventory, make estimates of energy consumption for BI more accurate.
  - People are concerned that our estimates based on state averages are not specific enough to BI

**NEW BUILDINGS**
- Make sure the city uses transparent processes/best practices in determining any new building codes. They need to focus on resilience and sustainability.
- Require Net Zero building standard for all new construction
  - Our code should encourage/require 'net zero energy homes' – homes that are so air-tight, well-insulated, and energy efficient that they produce as much renewable energy as they consume over the course of a year, leaving occupants with a net zero energy bill and a carbon-free home. Whole, integrated homes. Look at buildings as systems.
  - Build with 'Advanced Framing' (https://www.energy.gov/energysaver/energy-efficient-home-design/advanced-house-framing) 'Advanced house framing, sometimes called optimum value engineering (OVE), refers to framing techniques designed to reduce the amount of lumber used and waste generated in the construction of a wood-framed house. These techniques boost energy efficiency by replacing lumber with insulation material while maintaining the structural integrity of the home.'
  - Full lifecycle of materials taken into account.
  - CA every new residence has to be net zero by January 1. Focus on building enclosure. Can't have swiss cheese air sealing, more recycled materials less raw material, sustainable buildings, transparencies, how many carcinogens. Transparencies in materials.
  - Living Building Challenge https://living-future.org/lbc/
- Solar ready homes.
- City could provide marketing support for building net zero energy homes.
- Encourage people to live in smaller homes. Discourage building larger homes.
- Use local building materials
- Use carbon neutral building materials

- Reduce use of cement/concrete in construction because of its very high carbon footprint.
- Permeable surfaces in surrounding areas
- Encourage non-flammable roofs due to increased fire risk from global heating in the future
- Don't build near shorelines
- Capture rainwater
- Allow subdivision of existing extra-large houses into separate residences
- Preserve our forest cover. Discourage lawn installations. Encourage replacing disturbed construction sites with grass.

**EXISTING BUILDINGS**

- The city and/or private entities on Bainbridge, should apply for grants and subsidies for energy efficiency improvements for low-income residents
- The city could publicize best practices and tips for retrofitting homes to be more energy efficient
- City could fund energy audits for private residences
- Encourage commercial buildings to self-benchmark their carbon footprints. Building owners can compare costs with other building owners through databases like this. https://www.energy.gov/eere/buildings/building-performance-database-bpd
- Assess energy use and conservation for every household. Many households can't/won't afford such a service. Find a way to facilitate household level energy inventories as input for retrofit prioritization.
- Train workforce around efficiency skills.
- PACE financing of energy efficiency upgrades- means of financing energy efficiency upgrades, disaster resiliency improvements, water conservation measures, or renewable energy installations of residential, commercial, and industrial property owners.
- Try to get PSE to provide monetary incentives for rooftop solar, efficient water heating, & heat pumps.
- Remove those that are on shorelines.
- For energy efficiency renovations we voted on whether we would prefer prioritizing mandates vs. incentives. The vote was about 50-50. Some suggested with use both
- Ask people to disclose their energy bills during the sale/purchase of a home. Publish benchmarks for home efficiency for buyers to compare against.

**BOTH NEW AND EXISTING**

- BI can in fact set stricter energy efficiency guidelines than the state. (commenter is a former building contractor, RePower BI energy assessor, and seems to be all-around expert in building efficiency)
- Encourage residents to use lighter colored roof surfaces when next replacing their roofs
- Require new and retrofitted residences to be built electric vehicle ready
- Require new and retrofitted residences to be built solar ready
- Encourage use of a landscaping standard called SITES (https://www.asla.org/sites/). "The Sustainable SITES Initiative is a set of comprehensive, voluntary guidelines together with a rating system that assesses the sustainable design, construction, and maintenance of landscapes."
- Take equity and affordability into consideration in the plan.
  - Use grants to provide funds to support low income retrofits
  - City should provide an energy efficiency fund for low income residents
  - Investigate county and state as a source of funds
  - Hire professional grant writers and fund raisers to get money for this.

- Study the Bloomberg City Climate Action Playbook Brief (10/19) for ides that have been implemented in major US cities. https://data.bloomberglp.com/dotorg/sites/2/2019/10/American-Cities-Climate-Challenge-Climate-Action-Playbook.pdf

**NEIGHBORHOODS**

- Implement Community Solar projects, use open space on the Island for local solar power generation
- Build more walkable infrastructure within the city
- Coordinate planning with neighboring jurisdictions
- Build more affordable housing on the Island, have ambitious targets
- Building density
- Our plan should have targets relative to planning dates – not sure what this means other than possibly have more interim targets.
- Encourage people to use less stuff ala 'Library of Things', which is 'collections of things other than books that are being loaned like books, for no charge. A library of things can loan out kitchen appliances, tools, gardening equipment and seeds, electronics, toys and games, art, science kits, craft supplies, musical instruments, recreational equipment, and more.'.
- Energy Star appliances
- Encourage people to not rent storage spaces.
- We need impact fees that reflect carbon generation (should be commensurate with what Poulsbo is doing).
- Break out energy efficiency targets by Residential, Commercial, and Industrial so we can have different target dates for each.

**FUNDING**

- o Kick off another energy Repower BI Program- federal grant program?
- o Involve non-profits and get grants
- o Better Bainbridge- TARP money was American Resource and Recovery ACT. ARRA funded weatherization programs. $5 million grant. Pile of retrofits
- o PACE

**Second session Weds December 11, 2019**
**Facilitator: Mike Cox Note Taker: Herb Hethcote**

**<u>Energy Conservation</u>**

- Start a new Repower Bainbridge energy audits program to encourage energy conservation (insulation etc.)
- Introduce plants inside buildings for better air quality, decoration, and calming
- Encourage thermal shades and drapes to reduce heat loss through windows
- Use batteries to store power for later use in a home or community
- Build solar farms in sunny areas such as eastern Washington to generate power for use on Bainbridge
- Encourage shared homes
- Explore building underground to take advantage of geothermal and energy efficiency
- Remodel large homes by pooling resources
- Is the new building at the High School being built green?
- Encourage geothermal heat pumps

- Use rooftop systems to heat liquids for heating homes and shower water
- Provide community resources for learning about energy efficient methods
- Encourage the use of clothes lines for drying clothes

**Green Construction suggestions**

- Provide incentives for building smaller homes
- Build a database for benchmarking an Energy Star Portfolio
- Have a depot of recyclable materials that can be reused by others
- Encourage places for recycling building materials
- Encourage use of low carbon materials (engineered wood, CLT, etc.)
- Promote simple ideas for energy efficient homes (smaller homes, lower ceilings, more insulation)
- Create a public list of builders who are good at renewable construction and remodeling
- Publish the environmental impacts of construction choices such as concrete patio vs. gravel or pavers
- Encourage geothermal designs for hot water and heating
- Utilize black-body radiation from sun to heat water and buildings

:

- Plant trees around athletic fields for shading/heat mitigation.
- Educate property owners about use of low-impact lawn and landscape management like mulching over fertilizers, pesticides.
- Realtors should be required to disclose risks of flooding due to SLR and other exacerbated hazards associated with climate change
- No rebuilding in zones at high risk of inundation, hazard

**City Code suggestions**

- Stop granting waivers for buildings on steep slopes
- No rebuilding in areas of flooding (once and you are out) (flood insurance)
- expand vertically, not horizontally, "up, not out," leaves more room for trees as carbon offsets
- Require 100% passive design for all new structures
- Require all new buildings to be in tune with the site and the environment
- Require new homes to be built green (LEED etc.)
- Require solar power on all new construction (residential, commercial, government)
- Require all new construction to be carbon neutral
- Require new buildings to be 100% electric (no propane) with induction cooking and limited connected load
- Require better air tightness and heat recovery ventilation in buildings
- Require garden spaces and walking paths in all new developments
- Require trees cut on building sites to be used for construction lumber
    - Require energy efficient windows in new buildings
    - Require LED lighting in all public buildings
    - Create incentives and requirements for green construction and use of low carbon materials
    - Require new homes to have solar panels (or an investment in community solar projects)
    - Allow gray water plumbing and composting toilets in homes

**Offer classes**

- Offer classes for builders and contractors to learn green building techniques
- Offer classes for homeowners to learn to manage septic systems

**Miscellaneous**

- Bainbridge should install Island wide car chargers to encourage electric cars
- Allow solar communities such as Grow to pool their excess power into community car chargers
- Put trees and vegetation on every story of a building as in Italian "tree buildings"

**Building ideas given directly to CCAC member during the workshops**

- Partner with local roofing contractors to provide information to home owners about solar options whenever a roof is replaced or significantly repaired
- Require the orientation of new home and commercial building design to be able to accommodate or be consistent with the use of solar panels
- Create and make easily accessible lots of information about how and where to consider home solar panels
- Help home owners do less resource intensive landscaping- provide information and incentives (water, chemicals, native plants, resilience to climate change…)

## 3.4 Waste

**First session Dec 7: City Hall**
**Facilitator: Nora Nickum  Note taker: Barbara Zimmer**

**Waste reduction action ideas from 12/7 workshop**

- Encourage people to bring own containers for takeout at restaurants
- Regulate take-out containers
- Zero packaging at stores, including grocery stores
- Biodegradable and compostable alternatives
- Create a place to do commercial composting of compostable plastics
- Put a fee on single-use plastics
- Eliminate bottles and cups
- Reduce packaging
- Contact companies to reduce packaging
- Use methane digesters at transfer station
- Animal and food wastes compost station - support ordinance and help identify site
- Work with Zero Waste group
- Fine people who put trash into compost or recycling bins
- Conserve water
- Mandate composting of food waste
- Restaurants/stores/events compost
- Adding climate change/sustainability/green practices as a factor in City grantmaking decisions
- Support state policies to decrease/ban Styrofoam, packaging, single-use plastics
- Develop single-stream waste sorting of all waste
- Encourage re-use stores for furniture, clothes, etc.
- Work with Friends of the Farm to offer classes on composting at home
- Make recycling simpler/clearer
- Increase community education on recycling, composting, etc.
- Encourage BI disposal to provide more accurate info on their website
- Educate raise community awareness on reducing water use

- Educate/promote knowledge of % of cost for packaging/transportation – carbon labeling on products
- Support/expand programs like lending library and fix-it fairs
- Create a fibershed for clothing/fabric to repurpose older clothing
- Support creation of local businesses that eliminate need for Amazon, Office Depot, other big box stores. Bring back and use Paper Products shop, clothing for basics.
- Meet with local businesses to hear their hurdles and ideas, and encourage sharing ideas and lessons
- Fund/invest in a county/state plastic recycling industry
- Provide city space for things like lending libraries
- Funding for pickup of food waste from restaurants
- Involve local orgs and faith groups and encourage them to use zero waste resources like lending library
- Library of things for lending to individuals
- Urge WSF to renew on-ferry compost and make consistent with good signage
- Hydration stations at all parks to encourage use of reusable bottles
- More frequent opportunities to recycle Styrofoam
- Individual actions
    - Do comments on social media to urge companies to change
    - Patronize stores that have sustainable alternatives
    - Choose paper-wrapped products (or those with no packaging) rather than those with plastic packaging
    - Buy local

**Second session Dec 11, BHS Library**
**Facilitator: Lara Hansen  Note taker: Oona Bill**
Input from ~8 people who passed through and an additional sustained group of 6 who stayed for the discussion

**<u>Waste reduction action ideas from 12/11 workshop</u>**

- Have more "rotary auction" type events throughout the year
- Work with state, regional to minimize the amount of wasteful shipping (planes and trucks divert small orders of small items)
- Work with shops/grocery stores to reduce packaging to zero waste; no single use items and all of it should be recyclable
- Renegotiate Bainbridge Disposal to allow unlimited recycle drop offs.
- Have Amazon take their boxes back or use drop-off locker so that we don't have to use boxes
- Tax Amazon for online shipping, shopping and consumption.
- Local compost facility with biogas digester
- Tag items sold on Bainbridge Island with "Carbon Labeling"
- Create incentives for recycling our own trash
- Develop our own recycling plant so that we don't have to ship waste elsewhere
- More sites on Bainbridge Island for home composting
- Have a lending library or a library of things
- Better education on recycling. For example, what our facilities accept and what waste they do not accept.

- Turn Waste into electricity
- Facilitate the use of reusable containers
- Encourage people to buy less new stuff
- Teach about safe composting
- "Repair Cafes"
- When developers or homeowners cut down trees, there should be a set location for all of the lumber to go and be re-used or buried to keep carbon from being oxidized.
- The community needs to be 100% responsible for its own waste (right now we are 0% responsible for the disposal of it)
- Requirements for compostable packaging in restaurants as well as grocery and retail stores.
- Encourage people to use their own containers for take-out food.
- Impress upon people that trash has costs that are not accounted for. Charge more for things that produce waste/trash and thereby incentivize people to reduce their consumption.
- Turn waste into building blocks for building
- Have restaurant composting
- Offer bi-weekly pick-up options for waste
- Division of material waste bins in public places sorted by color. The division of these materials should be in the following categories; glass, organic, paper, metal, general waste
- Ban all single use plastics on the Island
- Eschew packaging
- Offer cooking classes that teach people how to use the food they buy
- Compost bins on Winslow
- Encourage grocery stores to purchase more bulk items
- Capture methane from landfills to use as fuel

Additional waste reduction ideas **given directly to CCAC member during the workshops**

- Promote Zero Waste Bainbridge
- Develop a citizen guide for making climate smart choices on Bainbridge (based on science and facts- with specific reasons/explanation provided for why a particular choice is good)
- Provide more education/information about how to recycle properly

## 3.5 Forests, Agriculture, and Shorelines

**First session Dec 7: City Hall**
**Facilitator: Deb Rudnick  Note Taker: Stephanie Rose**
**i**nput from ~10 people passing through and engaging in smaller group discussion

**Second Session Dec 11: BHS**
**Facilitator Deb Rudnick Note-taker: Clair Paige**
Input from approx. 8 people in dedicated group session- whole group stayed and engaged.

<u>Broad comments:</u>

- Consider using the word "manage" carefully. Nature can provide functions on its own without human "management". A natural landscape is a more resilient one, one that can change over time.
- Land protection in relation to water resources protection and reduction of use can be mitigating.

- Are there carbon sequestration techniques we can bring to bear in land use policy and practice?
- The City could use a wildlife biologist on staff who could help respond to, address natural resource questions
- This isn't and shouldn't all be on the city- too much capacity, and to pay for- partnerships with community organizations needed
- Homeowners and citizens need more education on why natural resources are so important to climate change resilience. Egg, small wetlands.
- Population is an overarching driver of climate change- how do we address this as an Island? Population grows, impacts grow- as we saw in our greenhouse gas inventory.
- Need to protect limited water resources- more is needed on water conservation education.
- Create a strategy that property owners can participate in.
- Several comments spoke to lack of enforcement of extant city policies as a major issue for achieving objectives for both mitigation and adaptation. E.g., stop allowing waivers of setbacks on steep slopes;
- Recognize interconnectivity of sea level rise, water table, groundwater fluctuations, forest health, shoreline erosion, drowning of beaches and retreat of beachfront
- Help pollinators pollinate- important for all our natural systems and for agriculture
- Encourage and educate landowners about leaving wild areas wild
- Ban the selling of toxic products like Roundup

<u>Forests and vegetation:</u>

- Recognize the importance of the role of the landscape and natural vegetation in maintaining water quality and quantity in the face of climate change
- Provide a list of trees that will thrive in 2050-2100. Identify and educate about trees that may be of risk of near-term decline, like Douglas fir and cedar
- Leave city-owned open space open for serving ecosystem functions
- Maintain healthy forest ecosystems with a critical eye towards mitigating wildfire risk
- Need better systems for fighting forest fires- most of BI is on small wells, cannot handle water needs?
- Ecological services provided by forest should be considered in permitting, development process
- Concern about the impacts of herbicides and pesticides and their impacts on wildlife as a threat multiplier with climate change
- Thinking forward in terms of plant and tree selection, being proactive on pathogens and drought. Avoiding "flammable" species like scotch broom.
- What actions should the city take to reduce wildfire threat? One example- firework ban.
- Balancing firewise protection with protecting trees around the home.
- Develop incentives to improve forest management on Island, particularly poorly managed, dense regrowth stands that are high fire risk and low health.
- A tree planting or other forest conservation requirement for all students? Graduation requirement?
- More trees along Winslow Way

<u>Shorelines:</u>

- Seriously consider that some shoreline may need to change/inundate rather than assuming we must armor/fight it
- What resources do we have in place to measure and monitor shoreline erosion rates?
- What are the legal constraints of the Shoreline Management Act on reacting to climate change?

- How do we compensate individuals when shoreline retreat becomes necessary?
- Start a shoreline structure buy-out program to abandon, remove structures at risk from SLR. Look to King County and Vashon programs that address this.
- Help with advising for shore-friendly methods- how do we get this information to homeowners? City website, other social media.
- Learn from other communities facing sea level rise
- Hard armoring is not a long-term solution in the face of inevitable SLR
- Question/limit/restrict industrial aquaculture as a threat multiplier to shorelines

Agriculture

- Involve farmers and gardeners in climate change solutions
- Increase local food production to decrease energy, carbon footprint of food being transported to the Island: both commercial scale and personal
- Innovative thinking for small-scale agriculture that can localize food production- e.g., crops on roofs?
- Better manure management to reduce emissions from this sector
- Give homeowners ideas of what they can do in their own gardens
- Do we understand our current amount of local food production- can and should we have quantitative goals? Work with Friends of Farms.
- Land uses including agriculture, horticulture, farming are vulnerable - zoning changes may be needed
- Biochar and other techniques for sequestering carbon in soils should be researched, incentivized
- Emphasize regenerative agriculture not only for commercial farms but also for pea patches and gardens
- Investigate biogas production for co-location with ag

## 2.6 Other Ideas

Water Resources:

- Promoting grey water systems
- Raingardens, LID should be emphasized, encouraged, incentivized. Maybe a community award/recognition for these extra steps taken?
- Classes on septic health
- Public and private well ownership: focus on conservation measures, incentives to conserve
- Continue prioritizing groundwater development plan

City actions- not topic specific

- The City should declare a climate emergency and take more immediate and meaningful action
- City needs to make more systemic, structural changes to the way it conducts business to address climate change
- Change city codes and regulations so that the City can require rather than just encourage emission reductions and adaptation measures
- City should focus more on environmental destruction component
- Incorporate climate change into emergency preparedness
- Recognize the Rights of Nature and ecological impacts of [city and individual] decisions rather than just the present-day fiscal considerations. Acknowledge it is not just all about people

- Include key climate change data and sea level rise examples as part of the annual emergency preparedness exercise

No Specific Topic/General

- Have a volunteer High School youth member on the CCAC- maybe a one-year term
- Water should be a separate focus area in the CAP rather than buried in among the others
- Start a CAP day event annually
- Partner with the Bainbridge Island Women's Club to spread information.
- Bring the "heart" aspect into the discussion
- Add "Web of Life" as a sixth focus area in the Plan
- Promote sense of community in addressing climate change issues- for example encourage involvement through community work projects like building a rain garden.

## Appendix C: Endnotes

### Executive Summary

[1] City of Bainbridge Island GHG Emissions Inventory. Final Findings Report, Cascadia Consulting Group Inc. 2019
[2] Clean Energy Transformation Act, May 7th 2019. https://www.commerce.wa.gov/growing-the-economy/energy/ceta/
[3] "carbon neutral" is not the same as carbon free—this transitional goal allows for a mix of fuels including natural gas, and also allows for 20% of the portfolio to be addressed by a combination of taxes, energy credits, and innovation in new energy technologies to offset carbon in the utility's portfolio.
[4] Reducing GHG emissions from Hydrofluorocarbons.
https://app.leg.wa.gov/billsummary?BillNumber=1112&Year=2019&Initiative=false

### Section 1: Introduction

[5] Hansen, L., S. Justus Nordgran and E. Mielbrecht. 2016. Bainbridge Island Climate Impact Assessment. EcoAdapt, Bainbridge Island. https://www.cakex.org/documents/bainbridge-Island-climate-impact-assessment
[6] IPCC, 2018: Summary for Policymakers. In: Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. https://www.ipcc.ch/sr15/
[7] Fourth National Climate Assessment. Volume 11: Impacts, Risks, and Adaptation in the United States. 2018. https://nca2018.globalchange.gov/
[8] Mauger, G.S., J.H. Casola, H.A. Morgan, R.L. Strauch, B. Jones, B. Curry, T.M. Busch Isaksen, L. Whitely Binder, M.B. Krosby, and A.K. Snover. 2015. State of Knowledge: Climate Change in Puget Sound. Report prepared for the Puget Sound Partnership and the National Oceanic and Atmospheric Administration. Climate Impacts Group, University of Washington, Seattle. doi:10.7915/CIG93777D
[9] http://nas-sites.org/climate-change/summary.html#.XQPYt4hKi71
[10] Bainbridge Island Comprehensive Plan. https://www.bainbridgewa.gov/162/Comprehensive-Plan
[11] http://icleiusa.org/programs/emissions-management/5-milestones
[12] Central Puget Sound Regional Open Space Strategy 2015
https://openspacepugetsound.org/sites/default/files/final-report/Regional-Open-Space-Strategy.pdf
[13] https://obamawhitehouse.archives.gov/president-obama-climate-action-plan
[14] Affirming Bainbridge Island commitment to meet the our exceed the goals in the Paris Climate Agreement
http://apps.bainbridgewa.gov/webLink8/0/doc/70588/Electronic.aspx
[15] https://www.wearestillin.com

[16] https://www.governor.wa.gov/issues/issues/energy-environment
[17] https://www.bainbridgewa.gov/922/Climate-Change-Advisory-Committee
[18]https://www.bainbridgewa.gov/DocumentCenter/View/8183/Ord-2017_03--Ch-1519-Site-Assessment-Review?bidId=
[19] Supra note 3, p. 21
[20] What are the RCPs? https://coastadapt.com.au/sites/default/files/infographics/15-117-NCCARFINFOGRAPHICS-01-UPLOADED-WEB%2827Feb%29.pdf
[21] Mauger, G.S., J.H. Casola, H.A. Morgan, R.L. Strauch, B. Jones, B. Curry, T.M. Busch Isaksen, L. Whitely Binder, M.B. Krosby, and A.K. Snover. 2015. State of Knowledge: Climate Change in Puget Sound. Report prepared for the Puget Sound Partnership and the National Oceanic and Atmospheric Administration. Climate Impacts Group, University of Washington, Seattle. doi:10.7915/CIG93777D
[22] Id
[23] RCR 2.6, 4.5, 6.0 and 8.5 are explained above. The IPCC published a set of climate scenarios in 2000 for use in the Third Assessment Report (Special Report on Emissions Scenarios - SRES). The SRES scenarios were constructed to explore future developments in the global environment with special reference to the production of greenhouse gases and aerosol precursor emissions. https://sedac.ciesin.columbia.edu/ddc/sres/
[24] NOAA. 2019. Seattle, WA-Station ID: 9447130. Retrieved from https://tidesandcurrents.noaa.gov/stationhome.html?id=9447130
[25] Miller, I.M., H. Morgan, G. Mauger, T., Newton, R. Weldon, D. Schmidt, M. Welch and E. Grossman. 2018. Projected Sea Level Rise for Washington State – A 2018 Assessment. A collaboration of Washington Sea Grant,
[26] A king tide is the highest predicted high tide of the year at a coastal location. It is above the highest water level reached at high tide on an average day. King tides are a normal occurrence once or twice every year in coastal areas. https://www.epa.gov/cre/king-tides-and-climate-change
[27] EPA. 2019. Climate Change Indicators: Coastal Flooding, Retrieved from https://www.epa.gov/climate-indicators/climate-change-indicators-coastal-flooding.
[28] NOAA. 2015. Digital Coast Sea Level Rise and Coastal Flooding Impacts Viewer. https://coast.noaa.gov/slr.
[29] Mauger, *supra* note 3, page 9-4.
[30] Conservation Biology Institute. Databasin. https://databasin.org
[31] Mauger, *supra* note 3, page 9-5.
[32] Supra note 3, p. 6-4
[33] What is Blue Carbon. NOAA National Ocean Service. Accessed July 16th 2020. https://oceanservice.noaa.gov/facts/bluecarbon.html
[34] Data from 2010 Census
[35] Supra note 1
[36] City of Bainbridge Island Greenhouse Gas Emissions Inventory, Final Findings Report, 2019, Cascadia Consulting Group Inc. https://www.bainbridgewa.gov/922/Climate-Change-Advisory-Committee

## Section 2: GHG Emissions Inventory

[37] City of Bainbridge Island GHG Emissions Inventory. Final Findings Report, Cascadia Consulting Group Inc. 2019
[38] The Climate Registry. (2010). *Local Government Operations Protocol: For the quantification and reporting of greenhouse gas emissions inventories.*
[39] Except direct carbon dioxide emissions from biogenic sources.
[40] Other jurisdictions may use different data sets, methods, and years for their GHG emission inventories.
[41] As indicated from U.C. Berkeley's *CoolClimate* Calculator. Outcomes from the consumption-based inventory analysis are presented at the per-household level because purchasing behavior is typically examined and analyzed at the household—not individual—level.
[42] *Taming Bigfoot* provides an easy interface with a carbon-footprint calculator designed to convert a number of common things you do to the amount of greenhouse gas they cause. The conversion factors used can be specified

for specific local regions so the results apply to that specific region, rather than a broad average, as much as possible.

[43] CoolClimate Network. https://coolclimate.berkeley.edu/

[44] Energy Star Carbon Calculator. https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager/understand-metrics/how

[45] ICLEI. Clearpath. https://icleiusa.org/clearpath/

[46] Clean Energy Transformation Act, May 7th 2019. https://www.commerce.wa.gov/growing-the-economy/energy/ceta/

[47] "carbon neutral" is not the same as carbon free—this transitional goal allows for a mix of fuels including natural gas, and also allows for 20% of the portfolio to be addressed by a combination of taxes, energy credits, and innovation in new energy technologies to offset carbon in the utility's portfolio.

[48] Reducing GHG emissions from Hydrofluorocarbons. https://app.leg.wa.gov/billsummary?BillNumber=1112&Year=2019&Initiative=false

## Section 3: Energy

[49] Washington State Greenhouse Gas Emissions Inventory: 1990-2015. Report to the Legislature. December 2018. Publication No. 18-02-043. https://fortress.wa.gov/ecy/publications/documents/1802043.pdf

[50] PSE: Our Diversified Electricity Supply. https://www.pse.com/pages/energy-supply/electric-supply

[51] Clean Energy Transformation Act, May 7th 2019. https://www.commerce.wa.gov/growing-the-economy/energy/ceta/

[52] "carbon neutral" is not the same as carbon free—this transitional goal allows for a mix of fuels including natural gas, and also allows for 20% of the portfolio to be addressed by a combination of taxes, energy credits, and innovation in new energy technologies to offset carbon in the utility's portfolio.

[53] 100% Commitments in Cities, Counties, and States. Sierra Club Home Page. Accessed February 5th 2019. https://www.sierraclub.org/ready-for-100/commitments.

[54] https://www.bainbridgewa.gov/DocumentCenter/View/4949/COBI-General-Sewer-Plan-July-2015---TOC_Exectuive_Summary?bidId= page ES-15).

[55] For further details, visit https://www.pse.com/green-options/Renewable-Energy-Programs/renewables-home

[56] LEED (Leadership in Energy and Environmental Design) is an ecology-oriented building certification program run under the auspices of the U.S. Green Building Council (USGBC). Rating systems are available for new construction and major renovations as well as existing buildings. The four LEED certification level designations are Platinum, Gold, Silver and Certified. Regardless of the certification level achieved, all projects must meet mandated prerequisites and then choose from 110 available credit points to reach the desired certification level.

[57] For further details, visit https://psebainbridge.com/current-projects

[58] For further details, including PSE's detailed needs assessment and solutions reports, visit https://psebainbridge.participate.online/

[59] Example of programs including: Real-time feedback on usage potentially leading to TOU (time of use) pilot program and Smart Meters and other forms of demand management (EVs, washing machines, hot water tanks, cooling).

[60] Possible funding mechanism for Green Energy and Building Fund:

- Captured as a function kWhs consumed, or calculated carbon generation with an industry standard price per ton (Carbon Balance assigns $15/ton as the value on carbon)
- A propane tax (per gallon or CO2 generation ~12.75 pounds per gal)
- A fuel oil tax (per gallon or CO2 generation ~22.36 pounds per gal)
- Grants that might be applied for by the Fund, a non-profit community stakeholder
- Donations and bequests
- License Plate Tabs (voluntary opt-in, mandatory for ICE vehicles flat or tiered by weight)
- Fund raising events (hosted by the Fund; organized by community organizations, schools, businesses, etc.)

Fund would be a committee of people from city, citizen and utilities/trades a non-profit open process modeled from similar municipalities.

[61]Examples of such programs include: 1) Real-time feedback on usage potentially leading to TOU (time of use) pilot program; 2) Smart Meters and other forms of demand management (electric vehicles, washing machines, hot water tanks, cooling); 3) customer-owned generation like roof-top solar to include assistance for condo associations to be supported in organizing projects; 4) Strong marketing campaign with local whitepapers of success; 5) A subsidized home energy efficiency retrofit program for low-income housing; and 6) Develop a tool kit and provide resources for homeowners to reduce energy use.

[62] The Department of Energy defines a microgrid as ''a group of interconnected loads and distributed energy resources within clearly defined electrical boundaries that acts as a single controllable entity with respect to the grid. A microgrid can connect and disconnect from the grid to enable it to operate in both grid-connected or Island wide. https://www.energycentral.com/c/ec/achieving-resilience-through-renewables-driven-community-microgrids

[63] https://bainbridgeprepares.org/

[64] Washington Clean Energy Fund. https://www.commerce.wa.gov/growing-the-economy/energy/clean-energy-fund/.

## Section 4: Transportation

[65] Motorized travel includes all travel by motor-using vehicles, including internal combustion engines, electric vehicles, and alternative-fuel vehicles (e.g., fuel cell or hydrogen powered) – excluding active transport (e.g., pedal-assisted) vehicles such as e-bikes.

[66] Vehicle miles traveled per capita is calculated as the total annual miles of vehicle travel divided by the total population in a geographic region over a given period of time, typically a one-year period.

[67] Mode share is a transportation term that describes the number of trips, or %age of travelers, using a particular type of transportation (car, transit, bicycling, walking).

[68] Public transit is used to broadly mean services to encourage alternatives to single occupancy vehicles, and may include public-private partnerships and other solutions to offer more efficient transportation.

[69] https://www.commerce.wa.gov/about-us/rulemaking/electric-vehicle-policies-and-laws/

[70] https://www.bainbridgewa.gov/708/Island-wide-Transportation-Plan-IWTP-Upd

[71] https://walkbikebainbridge.com/resources 71% of respondents rated the biking environment on Bainbridge Island very or somewhat unsafe; and 48% rated the infrastructure for walking in the vicinity of their home as bad or very bad (though in-town got good ratings); 65% of parents of school-age kids said their kids would walk or bike to school more often if there were safe infrastructure between home and school.

[72] This includes reducing vehicle-miles driven by residents and non-residents, as measured per Island resident.

[73] Data from other cities show that such networks must include separated or protected biking and walking lanes.

## Section 5: Buildings

[74] https://www.governor.wa.gov/sites/default/files/documents/clean-buildings-policy-brief-bill-signing.pdf

[75] Municipal buildings include buildings used for government related activities such as city halls, libraries, police stations, and schools that are over 5000 square feet. Residential buildings include single family homes, apartments, and condominiums. Commercial buildings include office buildings, warehouses, and retail buildings.
Industrial buildings include buildings where products or materials are fabricated, assembled, or processed.

[76] The definition of what constitutes remodels or additions that would be required to adopt green building standards should be discussed by the Green Building Task Force. As an example, the City of Santa Cruz requires all remodels and additions with a combined square footage greater than 350 to utilize a checklist http://www.cityofsantacruz.com/government/city-departments/planning-and-community-development/services/building-safety/green-building-program

[77] https://aiau.aia.org/courses/power-zero-optimizing-value-next-generation-green

[78] LEED (Leadership in Energy and Environmental Design) is an ecology-oriented building certification program run under the auspices of the U.S. Green Building Council (USGBC). Rating systems are available for new construction

and major renovations as well as existing buildings. The four LEED certification level designations are Platinum, Gold, Silver and Certified. Regardless of the certification level achieved, all projects must meet mandated prerequisites and then choose from 110 available credit points to reach the desired certification level.

[79]The Living Building Challenge is an international sustainable building certification program created in 2006 by the non-profit International Living Future Institute. https://living-future.org/lbc/

[80] https://www.pse.com/rebates/home-energy-assessment
https://www.pse.com/rebates

[81] IBID

[82] Task Force shall consider at a minimum the following: 1) Upgrade building code to require "solar + storage readiness" of new buildings that have sufficient solar exposure including solar heating capacity; 2) Adopt a definition of what sized municipal projects and what residential and commercial remodels and additions would be required to adopt green building standards; 3) Amend the City's land use and development codes to implement green building codes and adapt to climate impacts; 4) Change building code to include electric vehicle readiness; 5) Create "no net increase" water and energy standard to maximize water and energy efficiency and support improved water and energy efficiency of other projects such that there is no net increase Island-wide in water or energy use created by the new project; and 6) explore using low-carbon concrete and other low-carbon building materials.

[83] EcoAdapt Climate Change Adaptation Certification Tool: Moving Cities from Planning to Implementation: EcoAdapt and Foresight Partners Consulting. December 2018. Accessed July 16th 2020.
https://www.cakex.org/sites/default/files/2018EcoAdapt%20CCAC%20Tool%20FINAL_SPREADS.pdf

[84] The Regional Code Collaborative built on the success of King County's award-winning Sustainable Cities Program, a multi-jurisdictional group of planners and code officials from both within and outside of King County came together to leverage economies of scale in developing and updating green codes.
https://kingcounty.gov/~/media/depts/dnrp/solid-waste/green-building/documents/regional-code-collaboration-white-paper.ashx?la=en

[85] Additional community entities that are important partners include Master Gardeners, Fruit Club, Sustainable Bainbridge, Kitsap Conservation District, and Friends of the Farms. All of these groups are important partners that can help our community steward natural and agricultural resources under climate change.

[86] Information such as, but not limited to: 1) Streams and wetlands data (e.g., Wild Fish Conservancy Stream Typing Data, Fish Culvert Passability data); 2) Bainbridge Island Climate Impact Assessment, Climate Change Adaptation Certification and other local source suggested climate data (e.g., sea level rise, precipitation, flooding, temperature, wildfire, slope stability) including mapping; 3) Tree health data; and 4) Ongoing surface and groundwater quality monitoring by the City's Water Resources program and consultants.

## Section 6: Natural Environment

[87] https://www.cakex.org/tools/climate-change-adaptation-certification-tool

[88] https://www.bifd.org/firewise

[89] This goal is focused on shoreline natural resources: shoreline infrastructure and buildings are addressed in other sections.

[90] A **foodshed** is the geographic area that produces the food for a given community. Local foodsheds can contribute to smaller carbon footprints by decreasing the distance over which food must travel from producer to consumer. Foodsheds can have ancillary benefits in terms of the quality and nutrient value of the food produced, as well as the freshness, which can cut down on food waste which is an additional contributor to greenhouse gas emissions.

## Section 7: Waste

[91]https://www.bainbridgewa.gov/DocumentCenter/View/6770/Procurement-Policy-Resolution-No-2019-10-?bidId=. See section 4.5, Environmentally friendly purchasing.

[92] http://www.sustainablebainbridge.org/bainbridge-Island-zero-waste.aspx

[93] https://www.cakex.org/tools/climate-change-adaptation-certification-tool

## Section 8: Community Engagement

[94] This action item is now complete. On June 9th, 2020 the City Council approved - Relating to Climate Emergency Resolution 2020-05. http://apps.bainbridgewa.gov/webLink8/0/doc/92181/Electronic.aspx

## Section 9: Implementation

[95] Peter Plastrik, Joyce Coffee and John Cleveland, Innovation Network for Communities and Climate Resilience Consulting (July 2019).

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