



**CITY COUNCIL STUDY SESSION
TUESDAY, DECEMBER 03, 2019**

BAINBRIDGE ISLAND CITY HALL
280 MADISON AVENUE N.
BAINBRIDGE ISLAND, WASHINGTON

AGENDA

1. **CALL TO ORDER / ROLL CALL - 6:00 PM**
2. **EXECUTIVE SESSION**
 - 2.A **(6:05 PM) Pursuant to RCW 42.30.110(1)(i), to discuss with legal counsel matters relating to litigation or potential litigation to which the city, the governing body, or a member acting in an official capacity is, or is likely to become, a party, when public knowledge regarding the discussion is likely to result in an adverse legal or financial consequence to the agency,** 20 Minutes
3. **APPROVAL OF AGENDA/ CONFLICT OF INTEREST DISCLOSURE - 6:25 PM**
4. **MAYOR'S REPORT - 6:30 PM**
5. **PRESENTATIONS**
 - 5.A **(6:35 PM) Greenhouse Gas Inventory Report - Executive,** 45 Minutes
BainbridgeGHGFactSheet
Bainbridge_GHG Inventory Report
6. **UNFINISHED BUSINESS**
 - 6.A **(7:20 PM) Identification of Benchmarks for Climate Action Plan - Executive, Climate Change Advisory Committee,** 15 Minutes
CCAC December 3rd City Council Presentation on Targets
CCAC Climate Action Plan Goals and Focus Areas
 - 6.B **(7:35 PM) Traffic Calming Program Next Steps - Public Works,** 15 Minutes
Staff Memo_Traffic Calming
Attachment A_Traffic Calming Program.docx
Resolution No. 2019-06 Directing Use of Additional Vehicle License Fee Revenue Approved

012219.pdf
Traffic Calming Presentation 120319.pdf

- 6.C (7:50 PM) Update on the Development Moratorium - Planning,** 10 Minutes
Abbreviated Moratorium Work Program Status Report
Moratorium Extension Handout Final 100419
Ordinance No. 2019-26 Extending the Development Moratorium Approved 092419

7. NEW BUSINESS

- 7.A (8:00 PM) Town Square Cover Discussion - Public Works,** 10 Minutes
Staff Memo Town Square Cover
Town Square Cover Presentation

8. CITY COUNCIL DISCUSSION

- 8.A (8:10 PM) Proposal for Matching Funds for Dana's Trail - Councilmember Schneider,** 15 Minutes
Squeaky Wheels Offer for Dana's Trail
Dana's Trail Key Points and Cost Summary
Dana's Trail Detailed Cost Estimate
Dana's Trail Map
Dana's Trail Schools Map
- 8.B (8:25 PM) Communications with Advisory Committees - Mayor Medina,** 10 Minutes
- 8.C (8:35 PM) Bainbridge Island Community Bill of Rights Ordinance - Councilmembers Nassar and Peltier,** 15 Minutes
Updated Bainbridge Island Community Bill of Rights Ordinance
- 8.D (8:50 PM) City Council Committee and Liaison Assignments - Mayor Medina,** 15 Minutes
Draft - 2020 Council Assignments.pdf

9. FUTURE COUNCIL AGENDAS

- 9.A (9:05 PM) Future Council Agendas,** 10 Minutes
City Council Regular Business Meeting, December 10, 2019

10. FOR THE GOOD OF THE ORDER - 9:15 PM

11. ADJOURNMENT - 9:25 PM

GUIDING PRINCIPLES

Guiding Principle #1 - Preserve the special character of the Island, which includes downtown Winslow's small town atmosphere and function, historic buildings, extensive forested areas, meadows, farms, marine views and access, and scenic and winding roads supporting all forms of transportation.

Guiding Principle #2 - Manage the water resources of the Island to protect, restore and maintain their ecological and hydrological functions and to ensure clean and sufficient groundwater for future generations.

Guiding Principle #3 - Foster diversity with a holistic approach to meeting the needs of the Island and the human needs of its residents consistent with the stewardship of our finite environmental resources.

Guiding Principle #4 - Consider the costs and benefits to Island residents and property owners in making land use decisions.

Guiding Principle #5 - The use of land on the Island should be based on the principle that the Island's environmental resources are finite and must be maintained at a sustainable level.

Guiding Principle #6 - Nurture Bainbridge Island as a sustainable community by meeting the needs of the present without compromising the ability of future generations to meet their own needs.

Guiding Principle #7 - Reduce greenhouse gas emissions and increase the Island's climate resilience.

Guiding Principle #8 - Support the Island's Guiding Principles and Policies through the City's organizational and operating budget decisions.



City Council meetings are wheelchair accessible. Assisted listening devices are available in Council Chambers. If you require additional ADA accommodations, please contact the City Clerk's Office at 206-780-8604 or cityclerk@bainbridgewa.gov by noon on the day preceding the meeting.



CITY OF
BAINBRIDGE ISLAND

City Council Study Session Agenda Bill

MEETING DATE: December 3, 2019

ESTIMATED TIME: 20 Minutes

AGENDA ITEM: (6:05 PM) Pursuant to RCW 42.30.110(1)(i), to discuss with legal counsel matters relating to litigation or potential litigation to which the city, the governing body, or a member acting in an official capacity is, or is likely to become, a party, when public knowledge regarding the discussion is likely to result in an adverse legal or financial consequence to the agency,

SUMMARY: Executive session.

AGENDA CATEGORY: Discussion

PROPOSED BY: Executive

RECOMMENDED MOTION: Executive session discussion.

STRATEGIC PRIORITY: Good Governance

FISCAL IMPACT:

Amount:	
Ongoing Cost:	
One-Time Cost:	
Included in Current Budget?	

BACKGROUND:

ATTACHMENTS:

FISCAL DETAILS:

Fund Name(s):

Coding:



CITY OF
BAINBRIDGE ISLAND

City Council Study Session Agenda Bill

MEETING DATE: December 3, 2019

ESTIMATED TIME: 45 Minutes

AGENDA ITEM: (6:35 PM) Greenhouse Gas Inventory Report - Executive,

SUMMARY:

The City engaged Cascadia Consulting to complete a greenhouse gas emissions inventory. Cascadia will present the report and facilitate a Council discussion.

AGENDA CATEGORY: Presentation

PROPOSED BY: Executive

RECOMMENDED MOTION: Discussion

STRATEGIC PRIORITY: Green, Well-Planned Community

FISCAL IMPACT:

Amount:	
Ongoing Cost:	
One-Time Cost:	
Included in Current Budget?	

BACKGROUND: The City of Bainbridge Island recently worked with Cascadia Consulting to complete a comprehensive greenhouse gas inventory as part of the City's commitment to understanding its emissions as one aspect of its response to climate change. Greenhouse gas emissions inventories quantify the amount of climate pollution produced by an entity. As the Bainbridge Island city organization and community consider how to understand and reduce GHG emissions, this information will help track progress and inform decisions.

The City Council launched the project to develop a Bainbridge Island GHG inventory in 2017, as part of a series of climate change initiatives that included the creation of a Climate Change Advisory Committee (CCAC) and the request for that committee to develop a Climate Action Plan.

The report presented today provides information both for the Bainbridge Island community as a whole and for municipal government operations. The report includes three distinct inventories:

- A community inventory that estimates GHG emissions produced by activities of the Bainbridge Island community, including residents and businesses.
- A municipal inventory that accounts for the GHG emissions resulting from City of Bainbridge Island government operations.

- A consumption-based inventory that estimates GHG emissions associated with the consumption of food, goods, and services within the community, regardless of their origin.

The report also presents findings from additional analyses. These analyses provide additional context for understanding the complex topic of greenhouse gas emissions.

- Municipal and community-wide contribution analyses that identify key drivers of observed emission trends. For example, analysis calculates the impact that a hotter summer or colder winter may have had on household energy use, and thus, emissions.
- A carbon sequestration analysis that estimates the amount of carbon dioxide that Bainbridge Island trees absorb—or sequester—from the atmosphere on an annual basis.

ATTACHMENTS:

[BainbridgeGHGFactSheet](#)

[Bainbridge GHG Inventory Report](#)

FISCAL DETAILS:

Fund Name(s):

Coding:



CITY OF
BAINBRIDGE ISLAND

UNDERSTANDING OUR IMPACT

Bainbridge Island's Greenhouse Gas (GHG) Inventory Results

The City of Bainbridge Island (City) recently completed a comprehensive greenhouse gas (GHG) inventory. GHG inventories quantify the amount of climate pollution produced by an entity—in this case, from the Bainbridge Island community and municipal government operations. As the City continues to take action to reduce emissions, these inventories will serve as helpful tools for tracking progress and making improvements along the way.

What are our emissions?

We estimate that the Bainbridge Island community emitted 233,998 metric tons of carbon dioxide equivalent (MTCO_{2e}) in 2018—or 9.4 MTCO_{2e} per resident. **Offsetting those emissions would require every Bainbridge resident to grow 11.1 acres of forestland for one year.** The biggest emissions contributors:



Energy use by residential and commercial buildings

55% of our emissions come from building energy use, residential fuels, and transmission and distribution losses.



Transportation, mainly on-road vehicles and air travel

34% of our emissions come from on-road and off-road vehicles, air travel, and ferry transportation.

GHG Inventory Quick Facts

Three inventory types



Communitywide

Emissions from community activities, like energy use, travel, and waste disposal.



City Government Operations

Emissions from everyday government activities.



Consumption-based

Emissions associated with our goods and services.



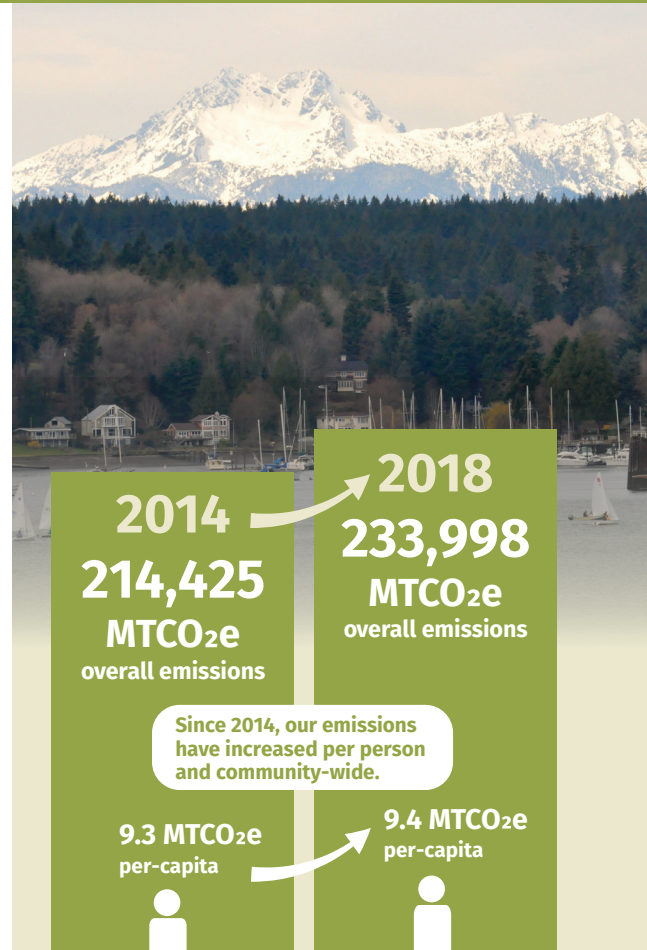
Three accepted protocols

The inventories were conducted using widely-accepted tools and protocols, including The Climate Registry's Local Government Operations Protocol, the U.S. Community Protocol, and U.C. Berkeley's CoolClimate Calculator.



Two representative years

Conducting inventories for both 2014 and 2018 allows us to see whether emissions are trending upward or downward over time.



Trends Over Time...

The 2018 emissions results showed a 9% overall increase over 2014 emissions, but only a 1% increase in per-capita emissions.

To meet our goals, we will need to decrease our overall emissions as well as our per-capita emissions.

Emissions increases were driven by:

- ↑ Changes in **electricity fuel sources** (e.g., from renewables versus coal)
- ↑ Growth in **population** and employment

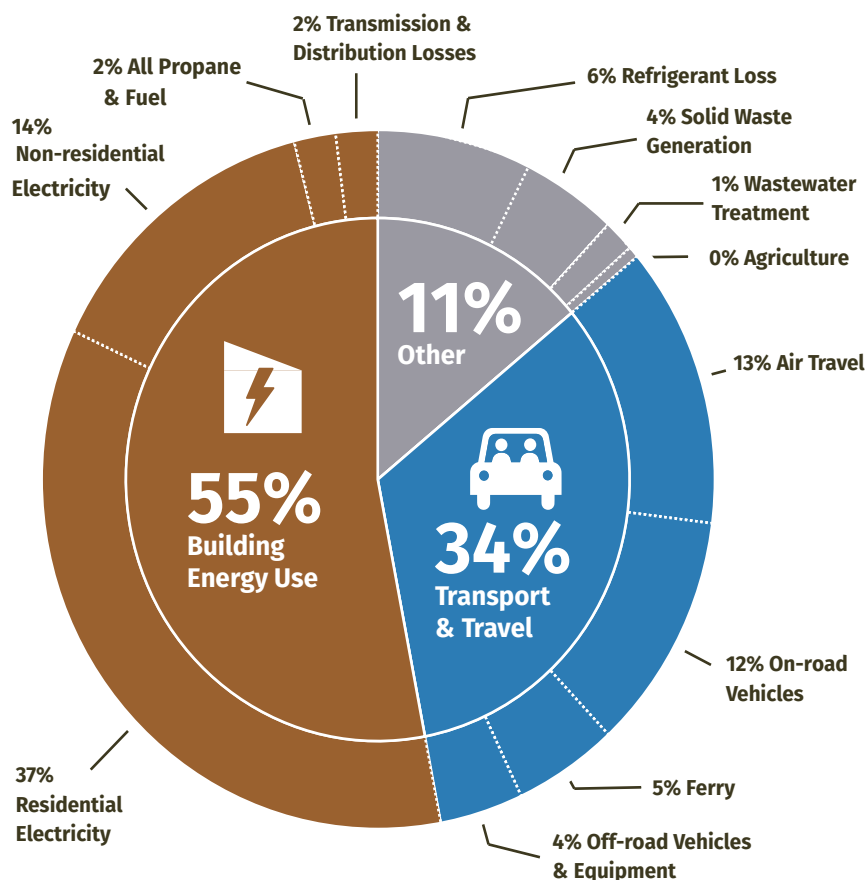
Emissions increases were limited by:

- ↓ Improvements in **vehicle fuel economy**
- ↓ Reductions in the **distance** each person drives
- ↓ Declining per-household and per-business **energy consumption**

See full inventory results on the back!

Community Overall Emissions

233,998 MTCO₂e



The Bainbridge Island community emitted an estimated 233,998 MTCO₂e in 2018.

That equates to 9.4 MTCO₂e per person—equivalent to the emissions from driving 50,000 passenger vehicles for a year!

The majority of those emissions are from consumption of energy in homes and commercial buildings.



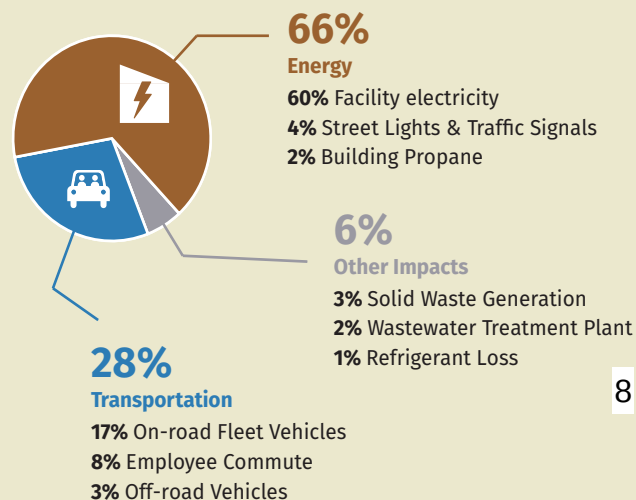
Be a part of the solution

Everyone has a role in reducing Bainbridge Island's greenhouse gas emissions. The things we buy, the way we commute to work, the food we eat, and the way we use energy in our home all have an impact.

City Government Emissions

2,291 MTCO₂e in 2018

Emissions from City of Bainbridge Island activities—which only make up about 1% of the total community emissions—are largely from energy needed to power municipal buildings, equipment, and vehicles.





CITY OF BAINBRIDGE ISLAND GREENHOUSE GAS EMISSIONS INVENTORY

FINAL FINDINGS REPORT

2019

CASCADIA CONSULTING GROUP, INC.



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Table of Contents

Acronyms	3
Executive Summary	4
Inventory Results	6
Introduction	11
Greenhouse Gas Inventory Overview	12
Roadmap of this Report	17
Communitywide Emissions	18
Results	19
Data Sources and Methodology	31
Community Contribution Analysis	40
Municipal Operation Emissions	43
Results	43
Data Sources and Methodology	52
Municipal Contribution Analysis	58
Consumption-Based Emissions	61
Results	61
Data Sources and Methodology	62
Conclusion and Next Steps	63
References	64
Appendix: Tree Carbon Sequestration	i
Data Sources and Methodology	i
Results	iii

Acronyms

ACS	American Community Survey (from the U.S. Census Bureau)
BOD	Biochemical oxygen demand (a metric of the effectiveness of wastewater treatment plants)
EIA	United States Energy Information Association
EPA	United States Environmental Protection Agency
CO ₂ e	Carbon dioxide equivalent
GHG	Greenhouse gas (limited to CO ₂ , CH ₄ , N ₂ O, and fugitive gases in this inventory)
GWP	Global Warming Potential
HFC	Hydrofluorocarbon
MTCO ₂ e	Metric tons of carbon dioxide equivalent
MOVES	Motor Vehicle Emission Simulator model (developed by EPA to quantify emissions from mobile sources)
MPG	Miles per gallon
NONROAD	Part of MOVES model developed by EPA to quantify non-road mobile emissions
O&M	Operations and Maintenance
ODS	Ozone depleting substance
PFC	Perfluorocarbon
PSCAA	Puget Sound Clean Air Agency
PSE	Puget Sound Energy
PSRC	Puget Sound Regional Council
SF ₆	Sulfur hexafluoride
TCR	The Climate Registry
USDA	United States Department of Agriculture
WARM	Waste Reduction Model (model developed by EPA to quantify solid waste emissions)
WSDOT	Washington State Department of Transportation
WWTP	Wastewater Treatment Plant
VMT	Vehicle Miles Traveled

Executive Summary

Global climate change poses a growing threat and humanitarian climate emergency, and Bainbridge Island shares the responsibility to reduce greenhouse gas emissions (GHG) to stabilize the global climate while preparing for the effects of climate change. The City of Bainbridge Island recently completed a comprehensive greenhouse gas inventory as part of its commitment to reducing emissions and leading on climate action. Greenhouse gas emission inventories quantify the amount of climate pollution produced by an entity—in this case, from the Bainbridge Island community and municipal government operations. As the Bainbridge Island government and community continues to take action to reduce GHG emissions, these inventories will serve as tools for tracking progress and making improvements along the way.

Inventory Approaches

This report describes findings from three distinct inventories:

- A **community inventory** that estimates GHG emissions produced by activities of the Bainbridge Island community, including residents and businesses. The community GHG inventory includes emissions due to energy used to power and heat homes and businesses; fuel used by vehicles running within Bainbridge Island; solid waste that is generated by the community; agriculture activities; fuel use by off-road equipment and vehicles; and others.
- A **municipal inventory** that accounts for the GHG emissions resulting from City of Bainbridge Island government operations. This inventory can help the City understand GHG emissions stemming from various activities associated with municipal operations, including from municipal building and facility operation, transportation, solid waste, wastewater, and refrigerant leakage.
- A **consumption-based inventory** that estimates GHG emissions associated with the *consumption* of food, goods, and services within the community, regardless of their origin. For example, this inventory would not include emissions from the production of locally-manufactured goods that are consumed entirely outside the community; however, it would include emissions associated with the production of goods manufactured in another community but consumed by Bainbridge Island residents, visitors, or businesses. This inventory can be examined in context with the community inventory to paint a more comprehensive picture of community emissions.

This report also presents findings from additional analyses:

- ▶ Municipal and communitywide **contribution analyses** that identify key drivers of observed emission trends. For example, analysis calculates the impact that a hotter summer or colder winter may have had on household energy use, and thus, emissions.
- ▶ A supplemental **carbon sequestration analysis** that estimates the amount of carbon dioxide that Bainbridge Island trees absorb—or sequester—from the atmosphere on an annual basis (in Appendix).

Inventory Methodology

The GHG inventories summarized in this report account for human-caused emissions of the most prominent and typical greenhouse gases for communities: carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). 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 (MTCO₂e). 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*.

GHG emissions are inventoried by multiplying annual activity data (e.g. electricity consumption) by emission factors (greenhouse gas emissions produced per kWh of electricity). For the municipal operations inventory, we obtained most data from City staff and local documentation such as Puget Sound Energy's (PSE) billing records, records from local wastewater treatment facilities, and fleet vehicle fuel use records. For the communitywide inventory, key data sources included electricity consumption data from PSE, Puget Sound Regional Council (PSRC) modeling outputs for vehicle miles traveled by fuel type, Bainbridge Disposal tonnage records, and Kitsap County Conservation District estimates of agricultural landowners and acreage. Where local data were not available, we referenced and downscaled national data sources such as from the Federal Transit Administration, U.S. Census Bureau, and the U.S. Department of Agriculture.

Inventory Boundaries

The activities and sectors included in GHG 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.¹
- ▶ **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 communitywide and municipal inventories for Bainbridge Island included emissions sources from all three scopes: Scope 1, Scope 2, and Scope 3. The inventories included all sources required by the consulted protocols and additional sources, as relevant.

Inventory Years

The inventories summarized in this report cover two representative years, **2014** and **2018**. To provide Bainbridge Island with the most comprehensive, consistent, and relevant information on their GHG emissions, we selected the most recent year available as an inventory year – 2018. For a comparison year, we selected 2014 because no major changes in organizational structure or infrastructure occurred after that year. Additionally, choosing a more recent comparison year increases the likelihood that all needed data are available and derived using consistent methodologies.

¹ Except direct carbon dioxide emissions from biogenic sources.

INVENTORY RESULTS

Community Emissions

The Bainbridge Island community emitted an estimated 233,998 metric tons of carbon dioxide equivalent (MTCO₂e) in 2018, or 9.4 MTCO₂e per Bainbridge Island resident. A high-level comparison suggests that this per-capita estimate is consistent with that of Kitsap County (9.9 MTCO₂e 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 6). The majority of Bainbridge Island community emissions stem from consumption of electricity in homes and commercial buildings (Figure 4).

Figure 1. Bainbridge Island communitywide emissions in 2018 (total = 233,998 MTCO₂e).

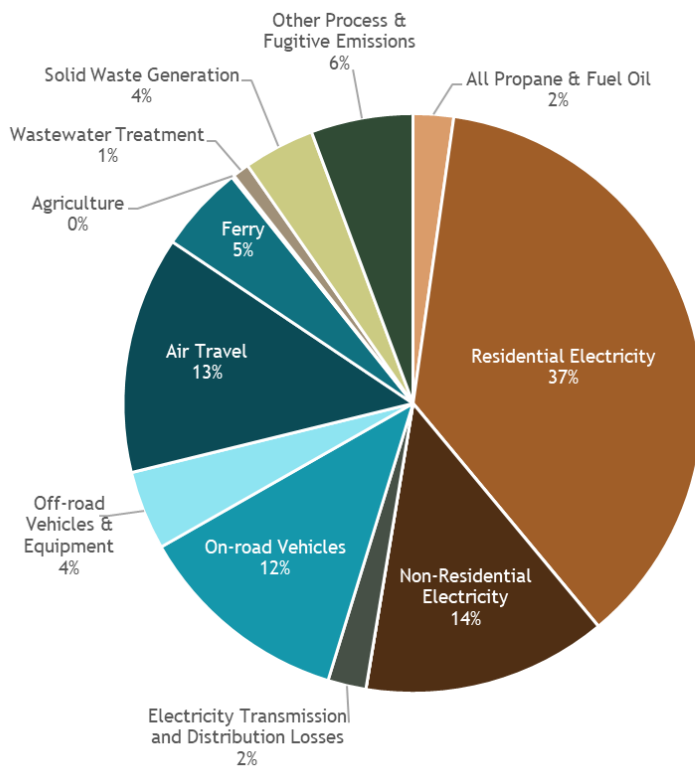
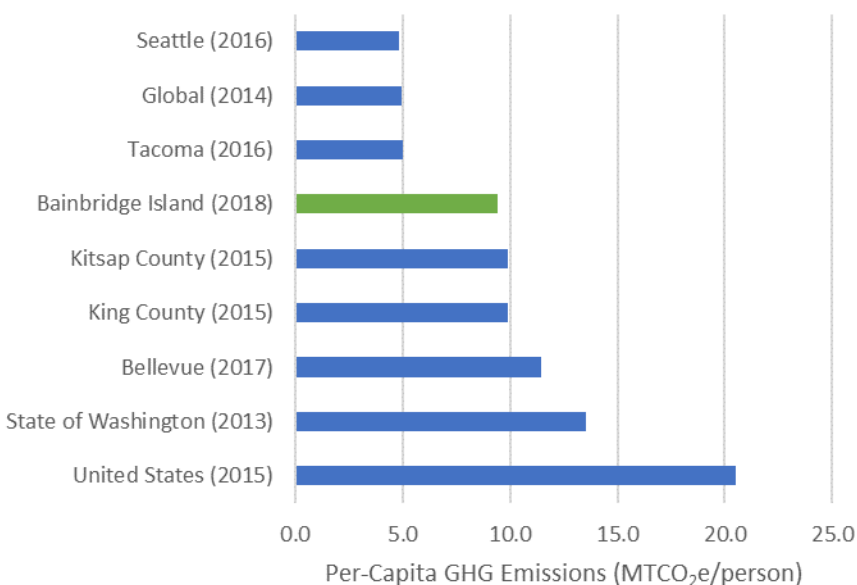
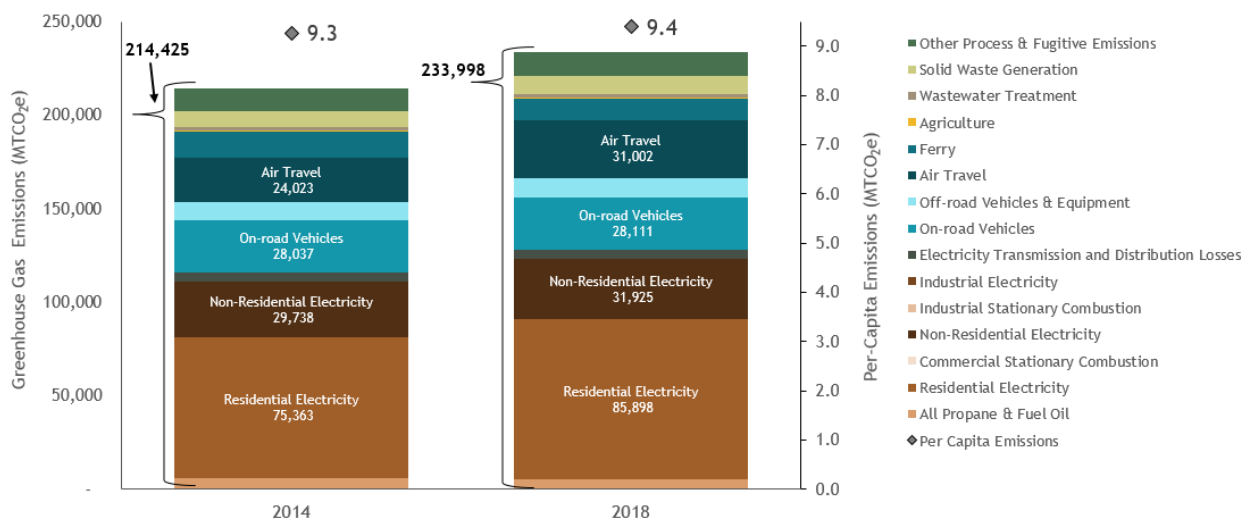


Figure 2. Per-capita GHG emissions comparison.²



Overall, communitywide emissions have increased by 9% since 2014 (Figure 5). Per-capita emissions, however, only increased 1% over that period, suggesting that population growth contributed to the observed trends. Changes in electricity fuel source (e.g., renewables versus coal) and growth in employment also pushed emissions upward, while improvements in vehicle fuel economy, reductions in the distance each person drives, and declining per-household and per-business energy consumption on Bainbridge Island softened the extent of those increases.

Figure 3. Bainbridge Island community emissions trends, by year and source.



² Other jurisdictions may use different data sets, methods, and years for their GHG emission inventories.

City Government Emissions

Emissions from City of Bainbridge Island activities—which make up about 1% of the total community emissions—increased 11% from 2014 to 2018, totaling 2,291 MTCO₂e in 2018 (Figure 7 and Figure 8). Major emissions sources included facility electricity consumption (60%) and on-road fleet vehicles (17%).

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 Waste Water Treatment Plant (WWTP), City Hall, Fletcher Bay: Well Field, and Bainbridge Island Public Works Operations and Maintenance Yard. Among the largest emissions decreases were from streetlights and traffic signals improvements.

Figure 4. City operations GHG emissions in 2018 (total = 2,291 MTCO₂e).

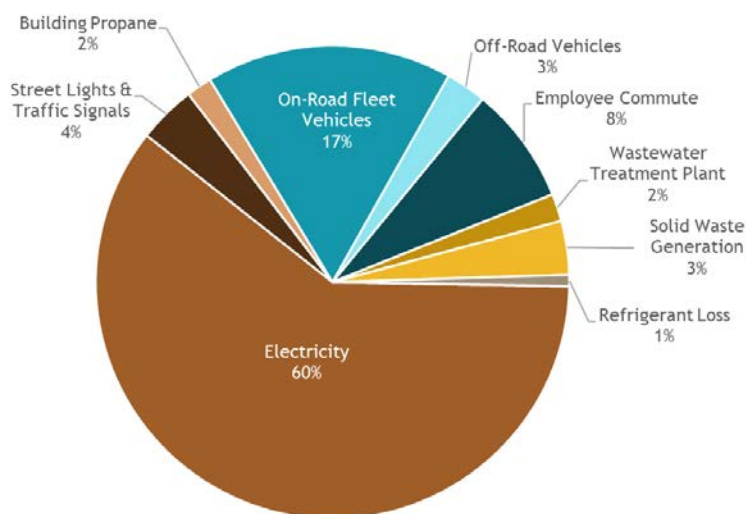
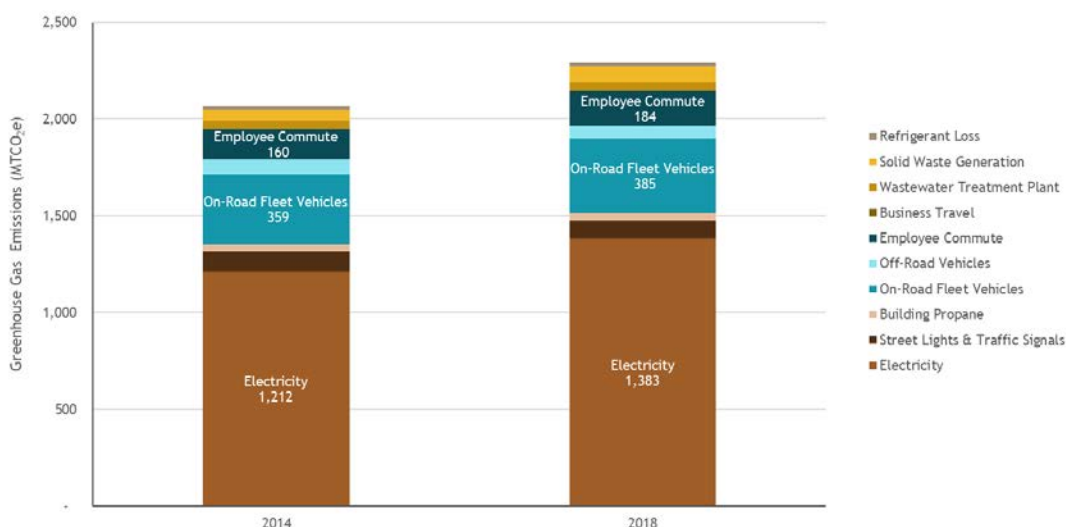


Figure 5. Bainbridge Island city operations emissions trends, by year and source.

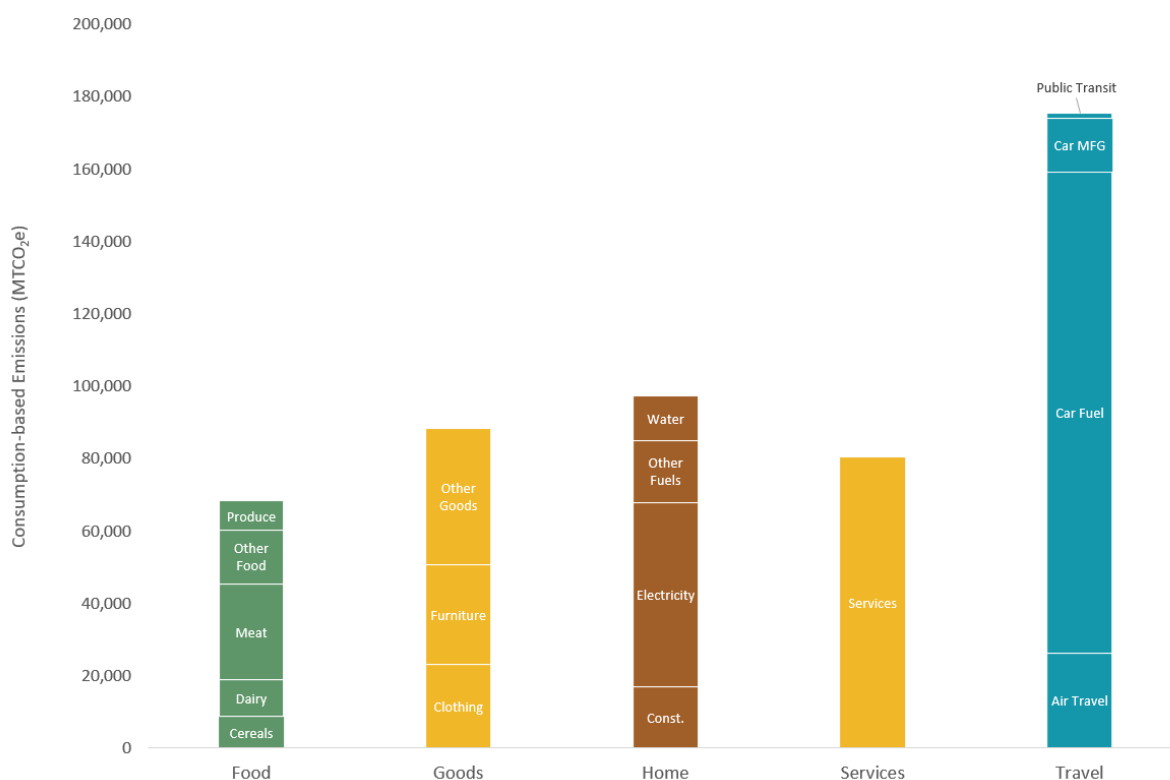


Consumption-based Emissions

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 greenhouse gas. Residents in 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 the average Bainbridge Island household emits 52 MTCO₂e a year through their purchasing behaviors.³ 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 MTCO₂e 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 6. Consumption-based emissions per Bainbridge Island household.



³ 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.

Next Steps

In analyzing the GHG emissions of Bainbridge Island, this report identifies key activities and sectors at both citywide and municipal operations scales that contribute the largest relative amounts of GHG emissions. Drawing from the results in this report, activities and operations can then be targeted for improvement and mitigation. Improving the inventory process, conducting regular inventories, and incorporating these inventory results into decision-making processes will be critical for evaluating progress toward emissions reductions targets and for identifying cost-saving opportunities in the future.

Introduction

This GHG inventory report for the City of Bainbridge Island details estimated GHG emissions from activities within the city of Bainbridge Island. GHG inventories quantify emissions associated with a specific “scope”—or boundary condition—over a specific period. By conducting GHG inventories at regular intervals, they can illuminate trends, accomplishments, and opportunities for improvement. They also hold governments and communities responsible for their impact on the environment and keep organizations on track towards reaching climate action goals.

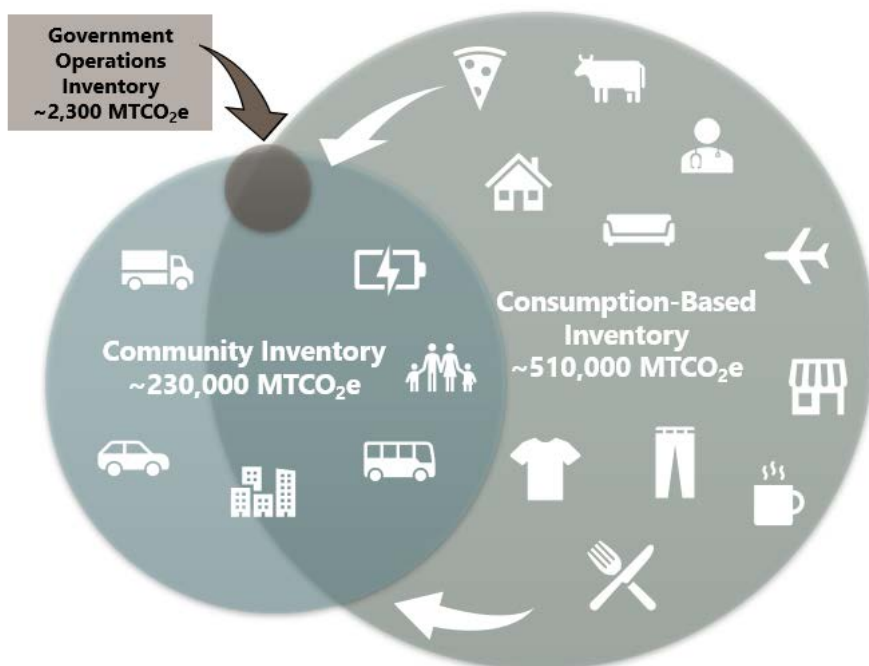
This report describes findings from three distinct inventories (Figure 10):

- A **community inventory** that estimates GHG emissions produced by activities of the Bainbridge Island community, including residents and businesses. The community GHG inventory includes emissions due to energy used to power and heat homes and businesses; fuel used by vehicles running within Bainbridge Island; solid waste that is generated by the community; agriculture activities; fuel use by off-road equipment and vehicles; and others.
- A **municipal inventory** that accounts for the GHG emissions resulting from City of Bainbridge Island government operations. This inventory can help the City understand GHG emissions stemming from various activities associated with municipal operations, including from municipal building and facility operation, transportation, solid waste, wastewater, and refrigerant leakage.
- A **consumption-based inventory** that estimates GHG emissions associated with the *consumption* of food, goods, and services within the community, regardless of their origin. For example, this inventory would not include emissions from the production of locally-manufactured goods that are consumed entirely outside the community; however, it would include emissions associated with the production of goods manufactured in another community but consumed by Bainbridge Island residents, visitors, or businesses. This inventory can be examined in context with the community inventory to paint a more comprehensive picture of community emissions.

This report also presents findings from additional analyses:

- ▶ Municipal and communitywide **contribution analyses** that identify key drivers of observed emission trends. For example, analysis calculates the impact that a hotter summer or colder winter may have had on household energy use, and thus, emissions.
- ▶ A supplemental **carbon sequestration analysis** that estimates the amount of carbon dioxide that Bainbridge Island trees absorb—or sequester—from the atmosphere on an annual basis (in Appendix).

Figure 7. Conceptual relationship among community, government, and consumption-based inventories for Bainbridge Island.



GREENHOUSE GAS INVENTORY OVERVIEW

Inventory Methodology

The GHG inventories summarized in this report account for human-caused emissions of the most prominent and typical greenhouse gases for communities: carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). 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 (MTCO₂e). The inventories were conducted using widely accepted tools and protocols, including The Climate Registry's *Local Government Operations Protocol*, ICLEI's *U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions*, and U.C. Berkeley's *CoolClimate Calculator*.

GHG emissions are inventoried by multiplying annual activity data (e.g. electricity consumption) by emission factors (greenhouse gas emissions produced per kWh of electricity). For the municipal operations inventory, we obtained most data from City staff and local documentation such as Puget Sound Energy's (PSE) billing records, records from local wastewater treatment facilities, and fleet vehicle fuel use records. For the communitywide inventory, key data sources included electricity consumption data from PSE, Puget Sound Regional Council (PSRC) modeling outputs for vehicle miles traveled by fuel type, Bainbridge Disposal tonnage records, and Kitsap County Conservation District estimates of agricultural landowners and acreage. Where local data were not available, we referenced and downscaled national data sources such as from the Federal Transit Administration, U.S. Census Bureau, and the U.S. Department of Agriculture.

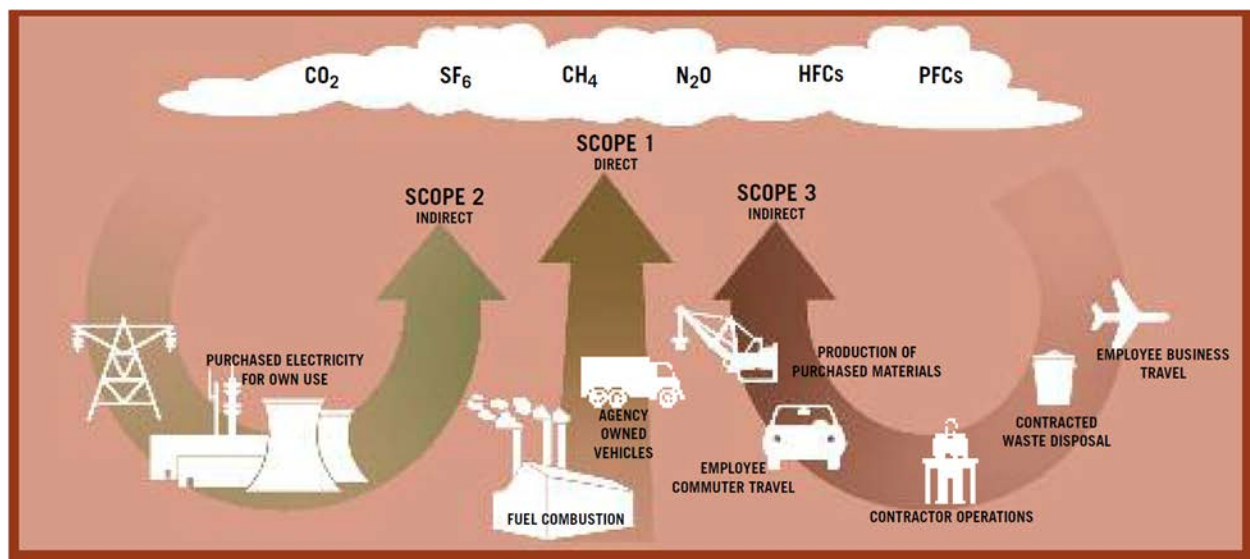
Inventory Boundaries

The activities and sectors included in GHG inventories are often classified into three “scopes,” which represent relative levels of control over an emissions source (see Figure 8 and Figure 9):

- ▶ **Scope 1** emission sources include those directly caused by an organization’s actions, such as from owned equipment and facilities.⁴
- ▶ **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 communitywide and municipal inventories for Bainbridge Island included emissions sources from all three scopes: Scope 1, Scope 2, and Scope 3. The inventories included all sources required by the consulted protocols and additional sources, as relevant.

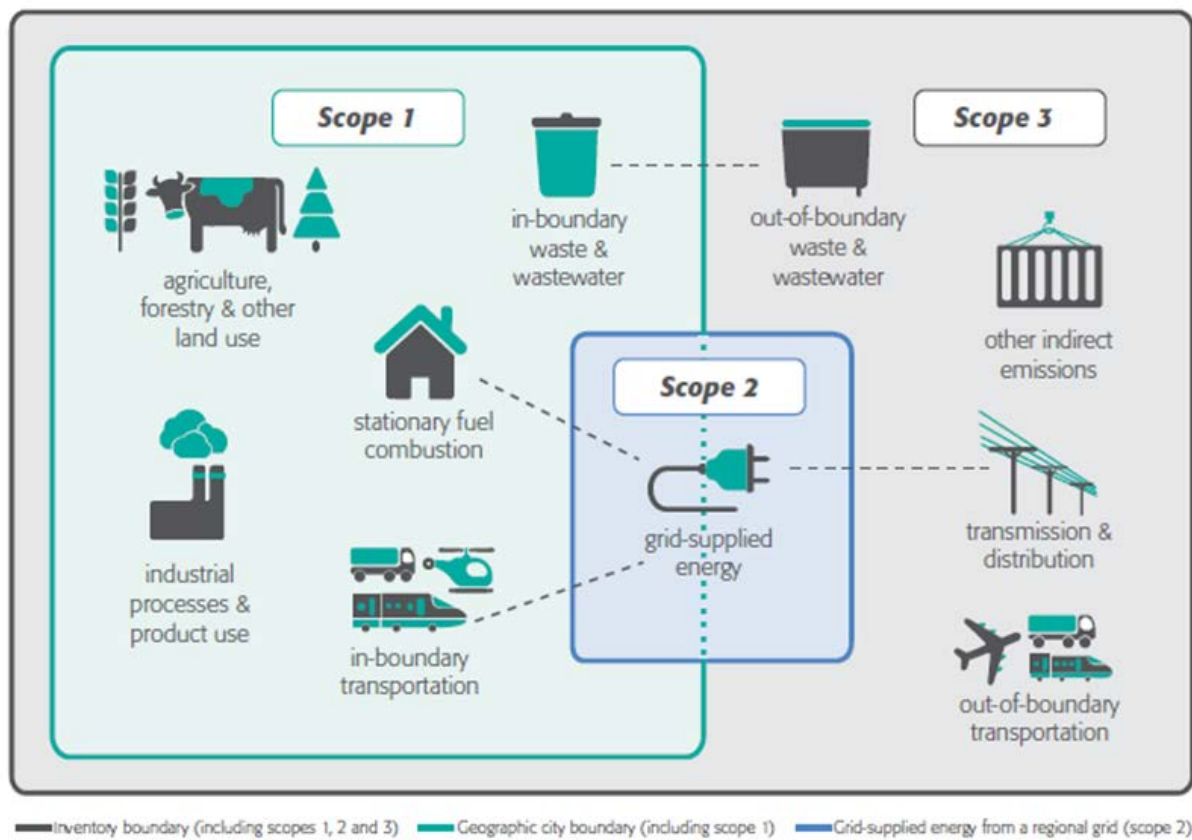
Figure 8. Sources and boundaries of municipal GHG emissions.⁵



⁴ Except direct carbon dioxide emissions from biogenic sources.

⁵ The Climate Registry. (2010). *Local Government Operations Protocol: For the quantification and reporting of greenhouse gas emissions inventories*.

Figure 9. Sources and boundaries of community GHG emissions.⁶



⁶ World Resource Institute (2014). Greenhouse Gas Protocol: *Global protocol for community-scale greenhouse gas emission inventories*.

The tables below summarize sectors included in the municipal and communitywide inventories.

Table 1. Community inventory emissions sources and scope categories.

Emissions Type	Required?	Scope 1	Scope 2	Scope 3
Residential Energy				
Electricity	x		✓	
Propane	x	✓		
Fuel Oil	x	✓		
Commercial Energy				
Electricity	x		✓	
Propane	x	✓		
Industrial Energy				
Electricity	x		✓	
Propane		✓		
Transportation				
On-Road Passenger Vehicles	x	✓		
On-Road Freight Vehicles	x	✓		
On-Road Transit Vehicles		✓		
Off-Road Vehicles and Equipment		✓		
Air Travel				✓
Ferry Travel				✓
Solid Waste, Potable Water, and Wastewater				
Solid Waste	x			✓
Potable Water Use Energy*	x		✓	
Wastewater Treatment	x		✓	
Refrigerant Leakage	x	✓		
Agriculture		✓		

* Potable water use energy—energy associated with treating and distributing potable water systems on the Island (e.g., from pumping stations)—is included in the non-residential energy consumption sector. Energy used for pumping individual wells is included in the residential energy consumption sector.

Table 2. Municipal inventory emissions sources and scope categories.

Emissions Type	Required?	Scope 1	Scope 2	Scope 3
Buildings and Facility Energy				
Electricity	x		✓	
Propane	x	✓		
Streetlights and Traffic Signals	x		✓	
Transportation				
On-Road Fleet Vehicles	x	✓		
Off-Road Vehicles	x	✓		
Employee Commute				✓
Business Travel				✓
Solid Waste, Potable Water, and Wastewater				
Solid Waste	x			✓
Potable Water Use Energy	x		✓	
Wastewater Treatment	x		✓	
Refrigerant Leakage	x	✓		

Table 3. Consumption-based inventory emissions sources and scope categories.

Emissions Type	Required?	Scope 1	Scope 2	Scope 3
Consumption-Based Emissions				
Household Consumption				✓
City Government Consumption				✓
Upstream Energy				✓

Inventory Years

To provide Bainbridge Island with the most up-to-date information on their GHG emissions, we selected the most recent year available as an inventory year: 2018. For a comparison year, we selected 2014 because no major changes in organizational structure or infrastructure occurred after that year. For example, the wastewater treatment facility update was completed before 2014, so those changes would be reflected in the 2014 inventory, enabling a more apples-to-apples comparison with 2018. Other factors in that deciding the inventory years include:

- ▶ **Data availability:** The availability of City data is scarcer further in the past.
- ▶ **Data consistency:** Some data were either modeled differently or organized differently in the past (i.e., methodologies changed over the last decade). Having a more recent baseline better ensures more of accurate comparison over time.
- ▶ **Relevance:** Choosing a more recent comparison inventory year allows for a more productive assessment of trends over time to inform climate action planning. For example, if the baseline year of 1990 was chosen it would be difficult to understand distinct drivers of changes between 1990 and 2019 due to the many interim changes that occurred within that time frame.

ROADMAP OF THIS REPORT

This report is organized into the following sections to assess GHG emissions associated with Bainbridge Island:

- ▶ The **Communitywide Emissions** section presents methodologies and results for community-based inventory.
- ▶ The **Communitywide Contribution Analysis** section explores the drivers of communitywide emission trends.
- ▶ The **Municipal Operation Emissions** section presents methodologies and results for municipal-based inventory.
- ▶ The **Municipal Contribution Analysis** section that explores drivers of municipal operation emission trends.
- ▶ The **Consumption-Based Emissions** section presents methodologies and results from the consumption-based inventory.

Each inventory section is organized as follows:

- ▶ **Results** section presents GHG inventory results for the study years. The results are quantified and, where relevant, summarized for trends between the two inventory years.
- ▶ **Data Sources and Methodology** section details the sources of inventory information by sector, with calculation methodologies, where relevant. The section also describes any data limitations or considerations.

The report concludes with a summary of the major trends across all the inventories and future considerations for climate action planning.

Communitywide Emissions

The communitywide GHG emissions inventory estimates GHG emissions from individuals, businesses, and commercial and industrial processes *within* Bainbridge Island. It also includes emissions associated with some residential and business activities that occur *outside* of Bainbridge Island, such as from electricity generation and solid waste transport to an out-of-state landfill.

Overall communitywide emissions are provided in units of metric tons of carbon dioxide equivalent (MTCO₂e). Table 5 below outlines the various emissions sources included in the communitywide inventory, along with their corresponding scope. The table also shows which sectors are required by the *U.S. Community Protocol*.

Table 4. Community inventory emissions and scope categories.

Emissions Type	Required?	Scope 1	Scope 2	Scope 3
Residential Energy				
Electricity	x		✓	
Propane	x	✓		
Fuel Oil	x	✓		
Commercial Energy				
Electricity	x		✓	
Propane	x	✓		
Industrial Energy				
Electricity	x		✓	
Propane		✓		
Transportation				
On-Road Passenger Vehicles	x	✓		
On-Road Freight Vehicles	x	✓		
On-Road Transit Vehicles		✓		
Off-road Vehicles and Equipment		✓		
Air travel				✓
Ferry				✓
Solid Waste, Potable Water, and Wastewater				
Solid Waste	x			✓
Potable Water Use Energy*	x		✓	
Wastewater Treatment	x		✓	
Other Process & Fugitive Emissions	x	✓		
Agriculture		✓		

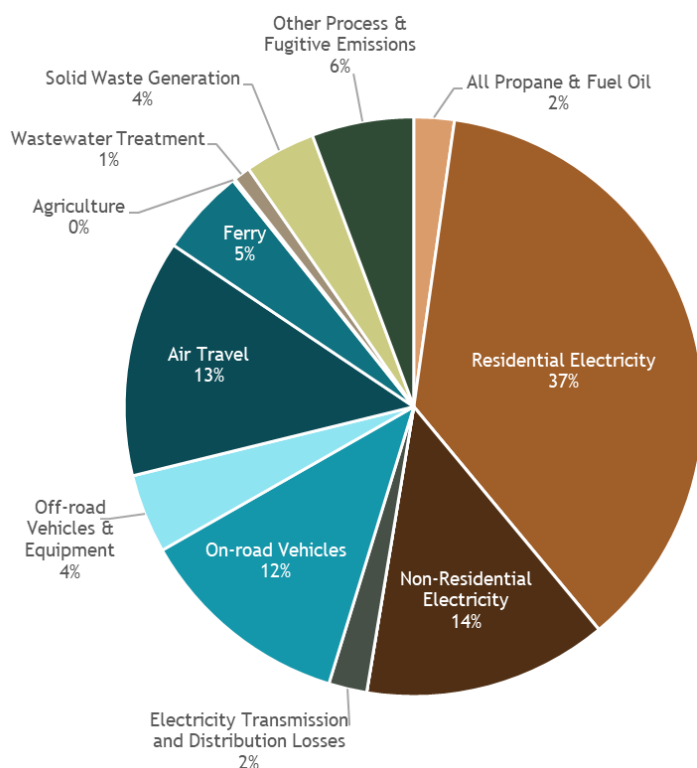
* Potable water use energy—energy associated with treating and distributing potable water systems on the Island (e.g., from pumping stations)—is included in the non-residential energy consumption sector. Energy used for pumping individual wells is included in the residential energy consumption sector.

RESULTS

Overview

Bainbridge Island's communitywide emissions in 2018 totaled 233,998 MTCO₂e—equivalent to 9.4 MTCO₂e per resident. Residential energy (37%) was responsible for the greatest proportion of communitywide emissions, followed by non-residential energy (14%), air travel (13%), and on-road vehicles (12%) (see Figure 11).

Figure 10. Bainbridge Island community emissions by source, 2018 (total = 233,998 MTCO₂e)



Communitywide GHG emissions increased by 9% from 2014 to 2018 (see Figure 12, Table 6, and Figure 13). These increases are primarily due to changes in electricity fuel sources (e.g., proportion of coal in the utility fuel mix) and growth in population and employment. Improvements in vehicle fuel economy, reductions in the distance each person drives, and declining per-household and per-business energy consumption all reduced the extent of this increase. Although communitywide emissions have increased by 9%, per capita emissions have increased only slightly—by 1% (see Figure 12).

Figure 11. Bainbridge Island community emissions, by year and source and resident. Major sources are labeled.

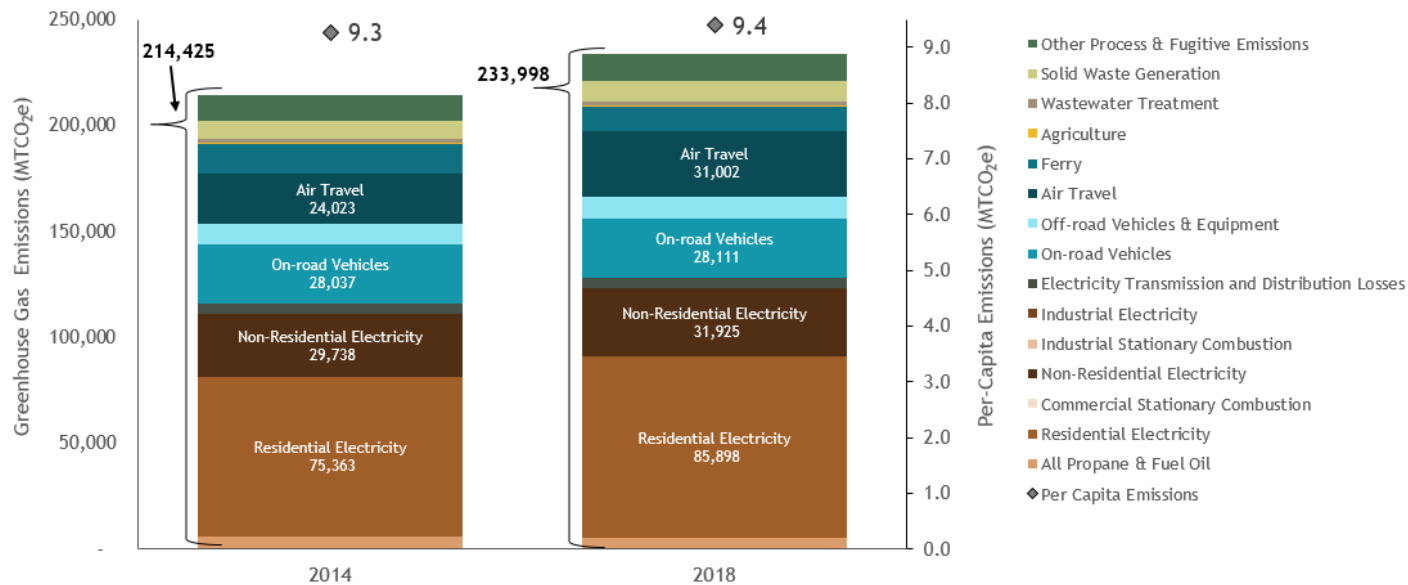
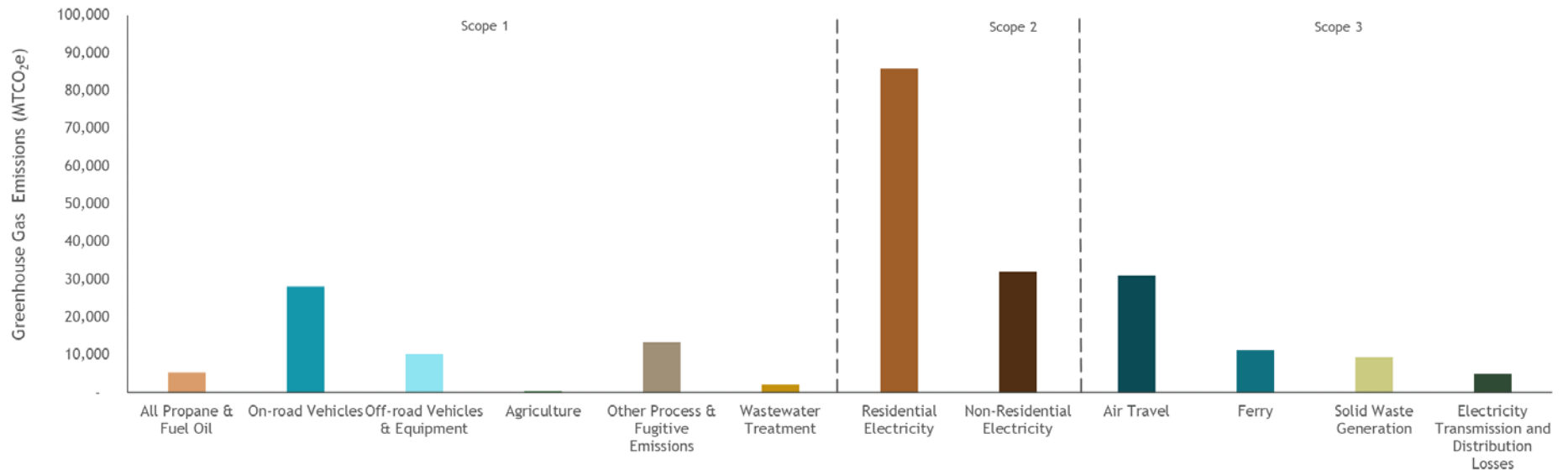


Table 5. Communitywide emissions, by sector.

GHG Emissions by Sector (MTCO ₂ e)	2014	2018	Change	% Change
Residential Energy	84,885	94,810	9,925	12%
Electricity	75,363	85,898	10,535	14%
Propane & Fuel Oil (Residential, Commercial, and Industrial)	5,912	5,274	-638	-11%
Losses from transmission & distribution	3,610	3,638	28	1%
Non-Residential Energy	31,162	33,277	2,115	7%
Electricity	29,738	31,925	2,187	7%
Losses from transmission & distribution	1,424	1,352	-73	-5%
Transportation	75,315	80,778	5,463	7%
On-Road Passenger & Freight Vehicles	27,448	27,330	-118	0%
On-Road Transit Vehicles	590	781	191	32%
Air Travel	24,023	31,002	6,979	29%
Ferry Travel	14,051	11,334	-2,716	-19%
Other Off-Road Vehicles and Equipment	9,204	10,331	1,127	12%
Solid Waste & Wastewater Treatment	10,503	11,470	968	9%
Solid Waste	8,369	9,289	920	11%
Wastewater Treatment	48	51	3	7%
Septic Tanks	2,086	2,131	45	2%
Other Process & Fugitive Emissions	12,209	13,332	1,123	9%
Agriculture	351	331	-20	-6%
Enteric Fermentation	319	297	-22	-7%
Manure Management	33	34	2	5%
TOTAL	214,425	233,998	19,574	9%

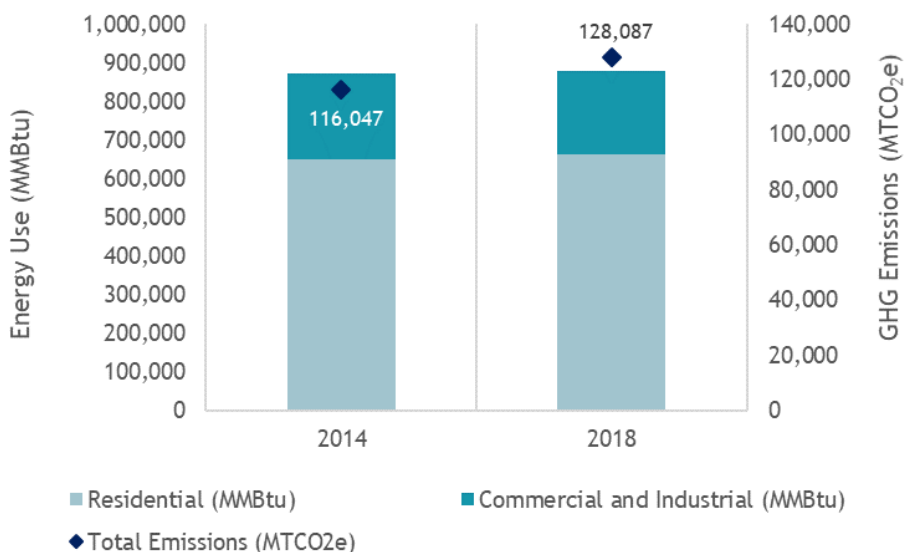
Figure 12. Bainbridge Island community emissions by source and scope, 2018.



Residential Energy

Emissions from residential use of electricity, propane⁷, and fuel oil accounted for 41% (94,810 MTCO₂e) of total communitywide emissions in 2018, a 12% increase from 2014. Residential electricity use alone makes up 37% of communitywide emissions; it also exceeds non-residential electricity use (see Figure 14).

Figure 13. Community building energy use, by sector and year.



Electricity

Emissions from residential use of electricity increased from 75,363 MTCO₂e in 2014 to 85,898 MTCO₂e in 2018, a 14% change. One contributing factor is that the consumption of electricity increased slightly from 184,865,169 kWh in 2014 to 189,165,563 kWh in 2018, an increase of 2%. Additionally, Bainbridge Island's population increased 8% from 23,135 to 24,891.

Changes in the electricity fuel mix also contributed to increases in residential electricity emissions (see Table 7). Puget Sound Energy (PSE) provides power to Bainbridge Island. Approximately two-thirds of the power is from coal and hydroelectric generation. In 2017, the fuel mix was 38% coal, 33% hydroelectric, 21% natural gas, 6% wind, and 2% nuclear and other sources.⁸ In 2014, the fuel mix was 35% coal, 36% hydroelectric, 20% natural gas, 3% wind, and 5% nuclear and other sources. Between 2014 and 2018, Bainbridge Island residents significantly increased their participation in PSE's Green Power Program. The

⁷ Propane amounts were derived from records that do not distinguish between residential, commercial, and industrial use. Therefore, all Bainbridge Island propane usage—regardless of sector—is included within the residential summary of emissions.

⁸ Puget Sound Energy. Electricity Supply. www.pse.com/pages/energy-supply/electric-supply (accessed June 27, 2019). The emissions inventory for 2017 was used because the 2018 inventory was not yet available during the time of study.

2018 10% participation rate is among the highest in PSE’s service area. However, due to the complexities of the electricity grid, the *U.S. Community Protocol* discourages consideration of renewable energy participation in calculating communitywide GHG inventories (see text box).

Table 6. Puget Sound Energy (PSE) electricity generation fuel mix for 2014 and 2017.⁹

Electricity Generation Fuel Type	2014	2017
Biomass	0%	0%
Coal	35%	38%
Cogeneration	4%	0%
Geothermal	0%	0%
Hydro	36%	33%
Landfill Gas	0%	0%
Natural Gas	20%	21%
Nuclear	1%	1%
Other	0%	0%
Petroleum	0%	0%
Solar	0%	0%
Waste	0%	0%
Wind	3%	6%

Green Power Purchases

Puget Sound Energy allows electricity users to enroll in a Green Power purchasing program to support renewable energy generation in the region. When utility customers enroll in this program, they are not paying for 100% renewable energy to be delivered directly to their home or business, but rather for their utility to buy a certain amount of renewable energy as part of the utility’s overall fuel mix. Because utility fuel mixes are used to calculate the GHG emissions of consumed electricity in a community, the renewable energy purchases made through Green Power programs are already included in the emissions calculations of the community GHG inventory. Therefore, accounting for Green Power purchases separately within a GHG inventory risks double-counting the benefits of a renewable energy system.

⁹ Puget Sound Energy. Electricity Supply. www.pse.com/pages/energy-supply/electric-supply (accessed June 27, 2019). The emissions inventory for 2017 was used because the 2018 inventory was not yet available during the time of study.

Propane and Fuel Oil

Due to a lack in locally available usage data, consumption of residential propane and fuel oil were estimated using data from local propane sales tax revenues, the U.S. Energy Information Administration (EIA), and 2017 American Community Surveys (ACS). These estimations suggest that emissions from residential use of propane¹⁰ and fuel oil totaled 5,912 MTCO₂e in 2014 and 5,274 MTCO₂e in 2018, an 11% decrease in four years. This decline is primarily due to a decrease in the number of households using those fuel sources, including for cooking and heating.

Electricity Transmission and Distribution Losses

As electricity travels from where it was generated, such as a hydroelectric dam or wind farm, to individual homes, businesses, and other buildings, some of the electricity is naturally lost over power lines and in substations and transformers. The proportion of the total electricity initially generated that is lost through these processes in a given year and region is known as the “grid loss” factor. This grid loss proportion can change from year-to-year based on a number of factors, including weather, transmission distance, power line size, and transmission voltage. Although lost electricity is not ultimately delivered to the consumer, it still results in the emission of greenhouse gases. We estimate that emissions from transmitting and distributing residential electricity to Bainbridge Island residents increased slightly from 3,610 MTCO₂e in 2014 to 3,638 MTCO₂e in 2018—a less than 1% change. These changes are a result of changes to the amount of electricity consumed and the “grid loss” factor of PSE infrastructure.

Non-Residential Energy

The non-residential energy sector includes greenhouse gas emissions from commercial and industrial electricity; losses due to the transmission and distribution of that electricity; and energy associated with treating and distributing potable water (e.g., from pumping stations). Commercial and industrial propane consumption emissions are included within the residential emissions sector, as the source data did not distinguish between different use sectors.

Electricity and Transmission and Distribution Losses

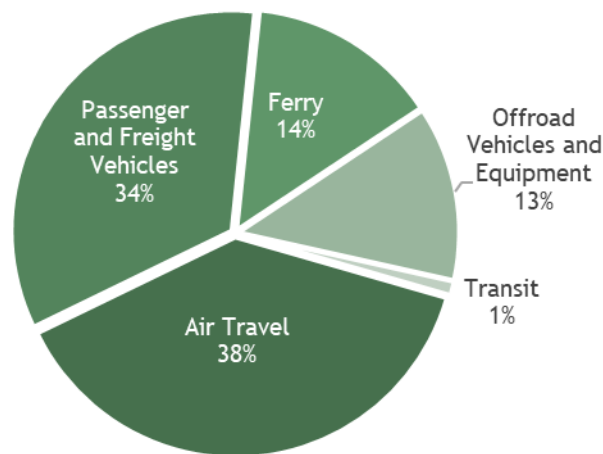
Emissions from commercial and industrial electricity accounted for 14% (31,925 MTCO₂e) of total communitywide emissions in 2018, making it the second-largest source along with air travel. Emissions from commercial and industrial use of electricity increased from 29,738 MTCO₂e in 2014 to 31,925 MTCO₂e in 2018, a 7% change. The increase in emissions can be partially attributed to the increased workforce from 8,224 to 8,943 employees, as well as from changes in the electricity fuel mix (see Figure 14 on page 23). Emissions from non-residential electricity transmission and distribution decreased approximately 5%, from 1,424 MTCO₂e in 2014 to 1,352 MTCO₂e in 2018. These changes are a result of changes in the amount of electricity consumed and the “grid loss factor” associated with PSE infrastructure.

¹⁰ Propane amounts were derived from records that do not distinguish between residential, commercial, and industrial use. Therefore, all Bainbridge Island propane usage—regardless of sector—is included within the residential summary of emissions.

Transportation

Transportation contributed over a third of Bainbridge Island community emissions in 2018, making it the second-largest contributor to the community's greenhouse gas emissions. In 2014, most transportation emissions came from passenger and freight vehicles, followed by air travel. However, in 2018, this trend shifted, with most transportation emissions coming from air travel followed by passenger and freight vehicles (Figure 15). The rapid growth of Sea-Tac Airport explains this shift: there was a 30% increase in landings at SeaTac International Airport between 2014 and 2018.¹¹

Figure 14. Community transportation emissions in 2018 (total = 80,778 MTCO₂e).



On-Road Vehicles

Most on-road vehicle emissions in Bainbridge Island stem from passenger cars. Downscaled modeling by the Puget Sound Regional Council suggests that passenger vehicles traveled over 69 million miles in Bainbridge Island in 2018 (Table 8 and Figure 16).

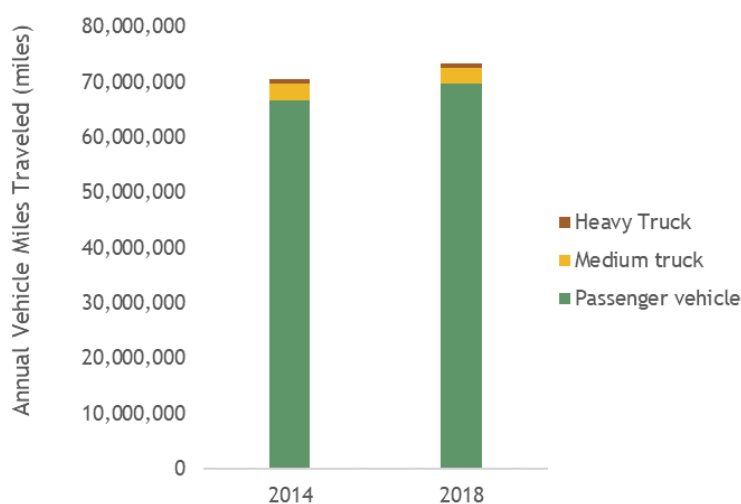
Table 7. Annual vehicle miles estimated for Bainbridge Island.

Type	2014	2018	Change
Passenger vehicle	66,612,870	69,543,904	4%
Medium truck	3,011,067	2,993,763	-1%
Heavy Truck	708,280	708,118	0%
Transit bus*	394,450	397,634	1%

*Miles for transit buses are in annual revenue miles.

¹¹ Air travel emissions from Bainbridge residents were attributed by downscaling total fuel use at Sea-Tac Airport to the Bainbridge Island community based on population. More information can be found in the "Data Sources and Methodology" section of this report.

Figure 15. Distribution of on-road vehicle miles traveled, by vehicle type.



Transportation data are typically recorded as vehicle miles traveled, or VMT. VMT is the total number of miles driven by motorized vehicles of specific types. Although the model used to estimate GHG emissions by VMT and vehicle type does not separately note hybrids and electric vehicles, these vehicles are subject to the same emissions standards as conventional gasoline or diesel vehicles. As such, hybrid and electric vehicle VMT are incorporated into the average emissions factors used for each vehicle type and model year, despite not being reported separately from general passenger vehicles.

Despite a 4% increase in VMT for passenger vehicles between 2014 and 2018, emissions from on-road vehicles increased minimally—by 0.3%. The increasing average fuel economy of passenger vehicles accounts for this minimal change (Figure 16).

We estimate that transit vehicle emissions increased 32% between 2014 and 2018, rising from an estimated 590 MTCO₂e in 2014 to 781 MTCO₂e in 2018. As reported by Kitsap Transit to the Federal Transit Administration, annual revenue miles remained relatively constant between the two inventory years—only increasing 1%. This trend suggests that increased transit emissions may be the result of incomplete reporting, decreased fuel economy, and/or increased use of high emitting fuels. The report indicates that Kitsap Transit activities in 2018 included more gasoline use for vanpool vehicles and a shift to liquified petroleum gas for paratransit (demand response) vehicles.

Off-Road Vehicles & Equipment

This inventory categorizes off-road vehicles and equipment into three categories: ferry travel, air travel, and other off-road vehicles and equipment. Other off-road vehicles and equipment includes emissions from vehicles and equipment used for agriculture, construction, lawn/gardening, and recreation such as boating.

Ferry Travel

Emissions from ferry travel decreased from 14,051 MTCO₂e in 2014 to 11,334 MTCO₂e in 2018, an overall decrease of 19%. This decrease is a result of a large reduction in fuel consumption by Washington State ferries traveling the Seattle-Bainbridge Island route. In 2014, we estimate that Bainbridge Island's share of ferry travel accounted for the consumption of 2.7 million gallons of fuel, compared to 2.2 million gallons in 2018.

Air Travel

We estimate that air travel contributed 13% to communitywide emissions, making it the largest source of off-road GHG emissions and second-largest source of emissions overall (tied with non-residential energy). Emissions from air travel increased 29%, from an estimated 24,023 MTCO₂e in 2014 to 31,002 MTCO₂e in 2018. This increase is largely attributable to population growth on Bainbridge Island and a 30% increase in total landings at SeaTac International Airport between 2014 and 2018. Our calculations are based on available jet fuel usage data (from 2015), which were scaled by the proportion of landings at SeaTac International Airport. Bainbridge Island's population and businesses make up approximately 0.5% of the four-county area that SeaTac predominantly serves (King, Kitsap, Pierce, and Snohomish counties).

Other Off-Road Vehicles & Equipment

We estimate that emissions from other off-road equipment accounted for 4% of overall emissions in Bainbridge Island in 2018 (10,331 MTCO₂e). Most of these emissions—which are estimated by scaling county-level model outputs to Bainbridge Island based on population—are generated by construction equipment, lawn and garden equipment, and pleasure watercraft.

Solid Waste and Wastewater

Solid Waste

Most emissions from the disposal of solid waste are associated with the release of methane from decomposing waste in the landfill (see Figure 17 and Table 9). Emissions from waste disposal increased from 5,527 MTCO₂e in 2014 to 6,134 MTCO₂e in 2018, an 11% change that is largely due to population growth and associated increases in tons disposed. Based on waste characterization studies from Kitsap County, King County, and Washington State, the composition of waste over time remained relatively constant. Approximately two-thirds of disposed waste is mixed solid waste, and about one-quarter is food scraps.

All of Bainbridge Island's waste is transported off-Island, first in trucks to the Olympic View Landfill in Bremerton then via train to the Columbia Landfill near Arlington, Oregon. We estimate that emissions from waste transportation increased from 2,352 MTCO₂e to 2,611 MTCO₂e. This is associated with the rise in waste collected and transported, which grew from an estimated 22,616 tons in 2014 to 25,102 tons in 2018.

Emissions from equipment used at the landfill to process waste and from yard waste composting make up a nominal proportion of the Island's solid waste emissions. We estimate that the diesel-powered

equipment at Columbia Landfill generated 371 MTCO₂e and 412 MTCO₂e in 2014 and 2018, respectively. In 2018, Bainbridge Disposal reported 1,900 tons of yard waste were composted, which generated 132 MTCO₂e.

Figure 16. Solid waste emissions in 2018, by source.

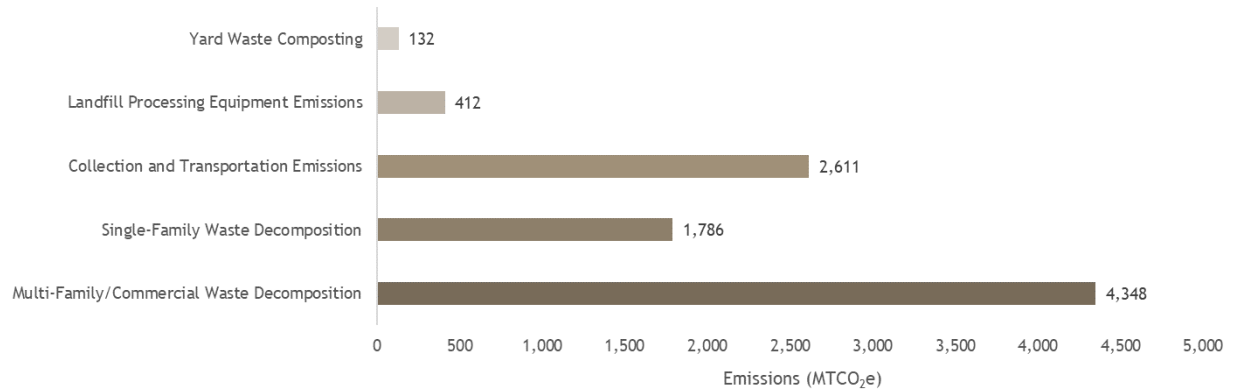


Table 8. Summary of solid waste emissions, by process.

Process	Emissions (MTCO ₂ e)		
	2014	2018	Difference
Solid Waste Disposal & Decomposition	5,527	6,134	+607
Yard Waste Composting	119	132	+13
Collection & Transportation to Landfill	2,352	2,611	+258
Processing with Equipment at Landfill	371	412	+41
Total	8,369	9,289	+920
Process	Emissions by Weight (MTCO ₂ e/ton waste)		
	2014	2018	Difference
Solid Waste Disposal & Decomposition	0.244	0.244	—
Yard Waste Composting	0.070	0.070	—
Collection & Transportation to Landfill	0.104	0.104	—
Processing with Equipment at Landfill	0.016	0.016	—
Total	0.344	0.344	—

Wastewater Treatment

The combined emissions from wastewater treatment (process and effluent emissions) and fugitive emissions¹² from septic sources contributed to 1% of communitywide emissions in 2018. This small proportion is associated with an overall 2% increase in emissions from these sources, from 2,134 MTCO₂e in 2014 to 2,182 MTCO₂e in 2018 (see Table 10). This increase is due to population growth and the associated increase in waste generated and processed (calculations for emissions from septic tanks were scaled based on Bainbridge Island population trends and calculating emissions from WWTP also accounted for population growth).

Table 9. Emissions from wastewater treatment and septic tanks (MTCO₂e).

Source	Emissions (MTCO ₂ e)			
	2014	2018	Difference	% change
WWTP Process	13	14	+1	+7%
WWTP Effluent	35	37	+2	+7%
Septic Tanks	2,086	2,131	+45	+2%
Total	2,134	2,182	+48	+2%

Other Process & Fugitive Emissions

Emissions from other processes and fugitive sources—including hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆)—contributed 6% of Bainbridge Island’s communitywide emissions in 2018.¹³ Emissions from HFCs—a common refrigerant used in refrigeration and air conditioning—comprised nearly all of these emissions (99%; 13,234 MTCO₂e).

We estimate that emissions from HFCs and PFCs increased 10% between 2014 and 2018, from 12,061 MTCO₂e to 13,237 MTCO₂e. This increase is driven by population growth, as emissions were scaled down by population from national-level emissions due to lack of locally available data.

Fugitive emissions from leaks of SF₆ in electricity transmission and distribution operating equipment declined an estimated 36%, from 147 MTCO₂e in 2014 to 95 MTCO₂e in 2018. Our calculations are based on data reported by PSE in their 2014 and 2017 GHG inventories, scaled down to the 1% of customers Bainbridge Island represents within PSE’s service area.

Data on process and fugitive sources such as HFC, PFC, and SF₆ emissions at city scales are scarce. The U.S. EPA’s 2019 *Inventory of GHG Sources and Sinks* was used as a proxy and the data was scaled to Bainbridge Island’s population. Estimating emissions from process and fugitive sources can be highly uncertain. Factors vary between individual pieces of equipment. Even if the leak rate of a piece of equipment has been tracked carefully, that leak rate can change after the leak is repaired or as the

¹² Fugitive emissions are from leaks.

¹³ Fugitive emissions are those that are not physically controlled but result from the intentional or unintentional release of GHGs. They commonly arise from the production, processing, transmission, storage and use of fuels or other substances, often through joints, seals, packing, and gaskets. Examples include HFCs from refrigeration leaks, SF₆ from electrical power distributors, and CH₄ from solid waste landfills.

equipment ages. For example, equipment can leak for two or more years before requiring a recharge, so emissions over this timeframe are typically not detected until after they occur.

Table 10. Summary of emissions from other processes and fugitive sources.

GHG	Emissions (MTCO ₂ e)			
	2014	2018	Difference	% change
HFC	12,058	13,234	+1,176	+10%
PFC	3	3	0	0%
SF ₆	147	95	-53	-36%
Total	12,209	13,332	+1,123	+9%

Agriculture

The Kitsap County agricultural census reported 11,483 and 12,539 livestock animals in 2012 and 2017, respectively. To determine what proportion of livestock animals were on Bainbridge Island during these years, we scaled agricultural census data for Kitsap County to Bainbridge Island based on land area. Using this methodology, we estimate that Bainbridge Island had 803 and 875 livestock animals in 2014 and 2018; representing a 9% increase in animals between the two years.

While the total animal population increased on the Island, we estimate that the number of cattle decreased by 12%. This decline drove estimated reductions in enteric fermentation emissions—the release of methane (CH₄) as livestock digest food—of 7%, from 319 MTCO₂e in 2014 to 297 MTCO₂e in 2018.

Emissions from manure management increased 5%, from 33 MTCO₂e in 2014 to 34 MTCO₂e in 2018, driven by the overall increase in livestock animal population.

Table 11. Agricultural acres and population trends, by livestock.

Animal	Population		
	2014	2018	% change
Horses	98	100	+2%
Sheep	41	82	+100%
Goats	35	44	+26%
Cattle	92	81	-12%
Poultry	517	538	+4%
Swine	20	30	+50%
Total	803	875	+9%

DATA SOURCES AND METHODOLOGY

We followed the *U.S. Community Protocol* (Version 1.1) to complete the communitywide emissions inventory for 2014 and 2018, using the U.S. EPA's *GHG Inventory Sources and Sinks Annexes* for 2014 and 2019 and the IPCC's *5th Assessment Report* (AR5) for updated GWPs and emissions factors where available. All emissions were calculated in ClearPath and were based on verified local data when they were available. When local data were not available, data inputs were scaled down from Kitsap County, King County, or national datasets. Most data were deemed medium quality due to assumptions about local data.

Completing this inventory involved acquiring the following data, summarized in Table 13 and detailed in the followed sections:

- ▶ **Activity data** that quantifies levels of activity that generate greenhouse gas emissions, such as vehicle miles traveled, and tons of waste generated.
- ▶ **Emission factors** that translate activity levels into emissions.

Data quality is assessed and reported on a High (H), Medium (M), and Low (L) scale in accordance with GHG inventory best practices:

- ▶ A *High* rating indicates data are detailed and specific to the local geography
- ▶ A *Medium* rating indicates data are more general or modeled with robust assumptions and may not be specific to the local geography, but are downscaled from a slightly broader geography (e.g., state-level)
- ▶ A *Low* rating indicates data are highly modeled, uncertain, or a default value was used based on national characteristics.

Table 12. Key data sources for the City of Bainbridge Island's communitywide inventory.

Sector	Activity Data (AD)	AD Quality	Emissions Factors (EF)	EF Quality
Residential Energy				
Electricity	- Overall kWh consumption from the three substations serving the Island - Residential proportion based on sample of customer data in 2014 and 2018	H	PSE reported emissions factors (PSE Greenhouse Gas Inventory, 2014 & 2017, Table 7.1)	H
Stationary Fuel Combustion	- Local propane sales tax information for Bainbridge Island (2014 and 2018) - EIA's average propane price per gallon of fuel for 2014 and 2018.	M	Emissions factors provided in ClearPath program	M
Electricity Transmission & Distribution Losses	- See "Electricity" - eGRID Western region grid gross loss percentage (2014 and 2016)	M	PSE-reported emissions factors (PSE Greenhouse Gas Inventory, 2014 & 2017, Table 7.1)	H

Sector	Activity Data (AD)	AD Quality	Emissions Factors (EF)	EF Quality
Non-Residential Energy				
Electricity	- kWh consumption from the three substations serving the Island - Non-residential proportion based on sample of customer data in 2014 and 2018	H	PSE reported emissions factors (PSE Greenhouse Gas Inventory, 2014 & 2017, Table 7.1)	H
Electricity Transmission & Distribution Losses	- See “Electricity” - eGRID Western region grid gross loss percentage (2014 and 2016)	M	PSE reported emissions factors (PSE Greenhouse Gas Inventory, 2014 & 2017, Table 7.1)	H
Transportation				
On-Road Vehicles	- Annual miles traveled, by vehicle and fuel type, provided by EPA MOVES analysis of travel model data, for proportion of Kitsap County VMT occurring in Bainbridge Island - Annual revenue miles traveled and fuel consumption by type provided by National Transit Database for Kitsap County, then scaled down to Bainbridge Island by population	M	CO₂, CH₄, and N₂O emission factors are defaults from the U.S. Community Protocol	L
Off-Road Vehicles & Equipment	Emissions by off-road sector and fuel type, along with days of use per year, provided by nonroad module of the EPA MOVES model, for proportion of Kitsap County activity occurring in Bainbridge Island	M	CO₂, CH₄, and N₂O emission factors are defaults from the U.S EPA MOVES nonroad model	L
Air travel	2015 Jet fuel consumption from Port of Seattle, scaled to target years by total landings and to the Island by population/employment	M	CO₂, CH₄, and N₂O emission factor defaults from ClearPath	H
Ferry travel	Ferry fuel price, from EIA, and cost, from WSDOT	M	CO₂, CH₄, and N₂O emission factor defaults from ClearPath	H
Solid Waste and Wastewater				
Solid Waste Generation	- Single-family waste tonnages from Bainbridge Disposal - Multi-family + commercial tonnages estimated from ratio of single-family to multi-family + commercial from 2015-2016 WA Waste Characterization Study, for Kitsap County - Landfill methane collection scenario confirmed “typical” by Columbia Landfill - Annual precipitation from National Weather Service, Arlington, OR	M	- Waste characterizations from 2015-2016 WA Waste Characterization Study, for Kitsap County - Waste characterization was comparable across Port Orchard samples and the Puget Sound-wide data from the aforementioned study; there was also little difference compared to King County compositions, which were assessed as a reference	M

Sector	Activity Data (AD)	AD Quality	Emissions Factors (EF)	EF Quality
Solid Waste Collection & Transportation	- Mass of solid waste from Bainbridge Disposal, with multi-family + commercial estimated from Kitsap County ratio of single-family to multi-family + commercial (see above) - Mileage from Google maps	M	Default EF from ClearPath	L
Yard Waste Composting	Yard waste tonnage from Bainbridge Disposal for 2018; extrapolated for 2014 using 2014:2018 single-family solid waste ratio	M	Default EF from ClearPath	L
Landfill Processing	- Mass of solid waste from Bainbridge Disposal, with multi-family + commercial estimated from Kitsap County ratio of single-family to multi-family + commercial (see above) - Fuel type for equipment confirmed by Columbia Landfill	M	Default EF from ClearPath	L
Wastewater Treatment Facility	- Wastewater treatment facility processes determined based on desktop research and confirmed with City staff - Population served by wastewater treatment facility estimated by multiplying the number of sewer connections by the average household size from ACS	M	- Default EF from ClearPath - CH₄ emissions were not applicable since the system is aerobic	L
Septic Tanks	Population data estimated based on number of septic systems reported to the Department of Health and the number of sewer connections in the community.	M	- Default EF from ClearPath - Fugitive emissions calculated using Community Protocol WW.11 Alternative Method for Methane Emissions from Septic Systems if Only the Population is Known	L
Refrigerant Leakage				
Refrigerant Leakage from Building Heating and Cooling Equipment, and Fugitive Emissions from Electricity Generation & Transmission	- HFC and PFC tonnage from Annex 6 in U.S. EPA GHG Inventory Sources and Sinks, scaled down to Bainbridge Island population - SF₆ tonnage and customer data from PSE, scaled down to Bainbridge Island customers	L	- HFC and PFC GWP from IPCC 5th Assessment Report, with adjustment for climate-carbon feedback - SF₆ 100-Year GWP from U.S. EPA GHG Sources and Sinks - Emissions calculated using Community Protocol Alternative Method BE.7.1.A	H

Sector	Activity Data (AD)	AD Quality	Emissions Factors (EF)	EF Quality
Agriculture				
Enteric Fermentation and Manure Management	- Animal population and pastureland from USDA Agricultural Census, for Kitsap County - Agricultural acres with livestock on Bainbridge Island and waste management system, from Kitsap County Conservation District - Typical animal mass and B₀ from U.S. EPA GHG Inventory Sources & Sinks, 2017 Annexes - Volatile solids and excreted nitrogen from U.S. EPA GHG Inventory Sources & Sinks, 2014 and 2017 Annexes - Methane conversion factors from <i>Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2017</i>, with annual average temperature from Climate Bremerton	M	- EF, 100-year GWP for CH₄ and N₂O, and volatilization nitrogen loss from U.S. EPA GHG Inventory Sources & Sinks, 2017 Annexes - EF for nitrogen volatilization and runoff/leaching from U.S. Community Protocol, Appendix G - Indirect N₂O emissions calculated using U.S. Community Protocol, Appendix G	M

The U.S. Community & Local Government Operations Protocols

The *U.S. Community* and *Local Government Operations* Protocols were built to provide easily applicable and accurate community-level and municipal estimates of GHG emissions. These protocols provide a consistent framework in which to compare emissions from a geographic or operational boundary across time. The *U.S. Community Protocol* was designed for community-scale GHG accounting, making it a valuable tool for counties and cities, and an appropriate choice for the City of Bainbridge Island. The *U.S. Community* and *Local Government Operations* Protocols are widely used, understood, and respected.

These community and municipal inventories follow the *U.S. Community* and *Local Government Operations Protocol* methodologies and deviate from their stated methods only when more precise, local data are available, per Protocol recommendations. The Local Governments for Sustainability (ICLEI) created the *U.S. Community Protocol* in 2013 and the *Local Government Operations Protocol* in 2010. The *U.S. Community Protocol* requires, at a minimum, reporting of the following five activities: 1) Use of electricity by the community 2) Use of fuel in residential and commercial stationary combustion equipment 3) On-road passenger and freight motor vehicle travel 4) Use of energy in potable water and wastewater treatment and distribution 5) Generation of solid waste by the community. These activities are required because they represent the largest sources of GHG emissions for most communities and are activities that can be impacted by local government actions. The *Local Government Operations Protocol* includes similar reporting requirements with a focus on only those emission sources that are within the government's control and are the result of day-to-day operations.

Residential Energy

- ▶ Data on **electricity** use were provided by the utility serving Bainbridge Island, PSE, and for transmission and distribution losses, by eGRID.
- ▶ Stationary fuel combustion consisted of residential **fuel oil**, with data from EIA and the number of households from ACS.
- ▶ **Propane** usage for residential, commercial, and industrial sectors was estimated using local sales tax data and EIA information on average propane fuel prices per gallon.

Non-Residential Energy

- ▶ Data on **electricity** use were provided by the utility serving Bainbridge Island, PSE, and for transmission and distribution losses, by eGRID. PSE does not track commercial and industrial energy separately, hence they were combined in this analysis.

Transportation

- ▶ **Vehicle miles traveled** were derived from Puget Sound Regional Council's MOVES analysis of travel model data and account for all mileage within the Kitsap County boundary regardless of trip origin or destination. Emissions for Bainbridge Island are assumed proportional to the share of Kitsap County VMT occurring in Bainbridge Island city limits. Share of average weekday VMT occurring in Bainbridge Island was calculated from 2014 travel model data and includes all vehicle types. Bainbridge Island VMT shares represents all trips to/from Bainbridge Island as well as those driving through the city boundaries. Year 2018 was extrapolated from the rates between 2014 and 2016. The PSRC data reported VMT and emissions for passenger vehicles, medium trucks, heavy trucks, and transit. In ClearPath, we reported medium trucks as light trucks.
- ▶ **Annual revenue miles** and **fuel consumption** data for Kitsap County were acquired from the National Transit Database from the Federal Transit Administration. These data were scaled down to Bainbridge Island by population.
- ▶ The Port of Seattle supplied **jet fuel consumption** data for SeaTac Airport for 2015, of which 0.5-1% was attributable to Bainbridge Island. SeaTac passenger enplaning surveys and population and employment statistics were used to assign the above fraction of the total airshed emissions to the Bainbridge Island community. This allocation methodology means that communities with more residents and business travelers are assigned a greater proportion of travel-related emissions at SeaTac airport. We scaled 2015 jet fuel usage to 2014 and 2018 based on the total landings in those years.
- ▶ **Ferry fuel consumption** was derived from EIA data on diesel fuel price and from WSDOT data on the reported fuel cost for the Bainbridge Island route in fiscal year 2015.
- ▶ **Off-road emissions** were calculated from the nonroad module of the EPA MOVES model for 2014 and 2018. The model estimates emissions at the county level, which were then scaled down to Bainbridge Island by population. Emissions include common non-road equipment, including construction, agriculture, lawn/gardening, and recreational equipment.

Ferry Emissions Attribution

Accounting for emissions related to ferry transportation can be complicated by the fact that ferries typically travel between multiple jurisdictions. To simplify the methodology for calculating these emissions, the *U.S. Community Protocol* recommends allocating portions of the total emissions related to ferry transportation according to the number of stops located in each jurisdiction. For example, for the Bainbridge Island-Seattle ferry, this would equate to a 50/50 split of emissions since there is one ferry stop in each city. This is the calculation approach that was used in this community inventory.

However, another possible method for attributing emissions to a particular jurisdiction is by ridership and examining the proportion of ferry riders from each city. To test that the 50/50 allocation was the correct choice for Bainbridge Island, we performed a sensitivity analysis using a ridership-based methodology. Using data reported by Washington State, we assumed that where travelers were heading in the evening on a weekday was likely where they reside. Based on this assumption and available data, we examined the proportion of total ferry travelers that end in Bainbridge Island in the evening versus elsewhere. Using this technique, we deduced that 47% of weekday ferry commuters are residents of Bainbridge Island—a value that is very close to the original 50% estimate.

Given that this proportion strongly aligns with the 50/50 approach recommended by the *U.S. Community Protocol*, we ultimately followed the U.S. Community Protocol attribution approach to align with the robust and established methodology used by other communities in the region.

Solid Waste and Wastewater

- ▶ Bainbridge Disposal single-family tonnages and Kitsap County waste characterization data, along with default emissions factors provided in ClearPath, were used to calculate emissions from **waste disposal and composting**. Multi-family and commercial tonnages were not directly available and were estimated using a single-family to multi-family + commercial ratio of 32:68, based on the transfer station survey data collected for the 2015-2016 Washington Waste Characterization Study. Waste characterization was comparable across Port Orchard samples and the Puget Sound-wide data from the aforementioned study; there was also little difference compared to King County compositions, which were assessed as a reference.
- ▶ **Landfill emissions** assumed an 82.5% capture rate, based on Columbia Landfill's confirmation of a "typical" collection scenario and ClearPath's associated capture rates.
- ▶ Wastewater emission calculations required data from Kitsap County Sewer District #7 and the City of Bainbridge Island **wastewater treatment plants**. City and District staff provided the data.
- ▶ Data required for higher quality calculations in ClearPath, such as BOD₅ or population specifically using septic systems (including unpermitted systems), were not available. Therefore, **fugitive septic tank** emissions were estimated based on the number of Bainbridge Island residents not served by a sewer connection.

Other Process & Fugitive Emissions

- ▶ Data on **fugitive refrigerant** HFC and PFC emissions at city scales is scarce. We used the U.S. EPA's 2019 Inventory of GHG Sources and Sinks and scaled the data to Bainbridge Island by population. GWP were adjusted to the latest available values in 2014 and 2018, which corresponded to the values in the 4th and 5th Assessment Reports, respectively.
- ▶ PSE's greenhouse gas inventories from 2014 and 2017 provided **fugitive electric transmission and distribution** emissions data for SF₆. We scaled the data to Bainbridge Island using PSE customer data.

Agriculture

- ▶ The USDA provides publicly available data on the number of animals by county, which was scaled down to Bainbridge Island according to the ratio of livestock to land area. Kitsap County Conservation District provided data on manure management systems. The EPA provides national-level **animal enteric and manure** emissions factors, and state-level emissions factors for cattle.

Considerations

At the time of this inventory, not all communitywide data were available. Many calculations were scaled from national or county estimates by population. ClearPath's default emissions factors were used in cases where local data were not available. There is always a certain level of uncertainty associated with inventories, given constraints in data availability for most communities. However, the goal of performing inventories is to attempt to accurately and precisely account for all sources of emissions using best available data and unbiased methodologies. While ranges of uncertainty are typically not quantified, we strive to use approaches that produce estimates that are neither conservative nor liberal in their leanings, and are based on the most locally-specific and reputable data sources.

A list of data limitations and other considerations specific to Bainbridge Island's communitywide inventory is provided below.

- ▶ **Multi-family and commercial solid waste tonnage:** Since tonnage data was not available, we assumed a 32:68 ratio of single-family to multi-family and commercial waste, based on Port Orchard transfer station surveys in 2015.
- ▶ **Yard waste composting tonnage:** Bainbridge Disposal data was available for 2018. To derive 2014 yard waste composting tonnage, we calculated the 2018 ratio of single-family tonnage to yard waste composting tonnage and applied the same ratio to 2014 single-family tonnage.
- ▶ **2018 VMT:** PSRC data was available for 2014 and 2016. To derive 2018 VMT, we assumed a linear rate of increase from 2014 to 2016 to 2018.
- ▶ **2014 and 2018 Annual Revenue Miles:** We scaled Kitsap County data to Bainbridge Island according to population, which may not accurately reflect public transit ridership on Bainbridge Island.
- ▶ **Septic tank fugitive emissions:** In the absence of data on BOD₅, we used the U.S. Community Protocol WW.11 Alternative Method to calculate methane emissions when only total population is known.
- ▶ **HFC and PFC tonnage:** National data was available for 2014 and 2017 and was scaled down to Bainbridge Island by population. We assumed semiconductor manufacture, and the production of magnesium and aluminum, did not apply to Bainbridge Island and excluded contributions from those sources. The PFC-Substitution of ODS value provided was "does not exceed 0.05"; 0.04 was used as an estimate and may be an overestimate.
- ▶ **Air travel:** We were not able to obtain fuel use data for 2018, so the air travel emissions were estimated by using a scaling factor from 2015 fuel use data based on the total landings for 2014 and 2018.
- ▶ **Off-road vehicle and equipment:** We used the EPA MOVES model to estimate off-road vehicle and equipment emissions. The model estimates emissions at the county-level; we scaled Kitsap County emissions to Bainbridge Island by population.

These considerations should be taken into account when interpreting findings from this inventory. We also recommend that future inventories seek to address these data limitations, if possible.

COMMUNITY CONTRIBUTION ANALYSIS

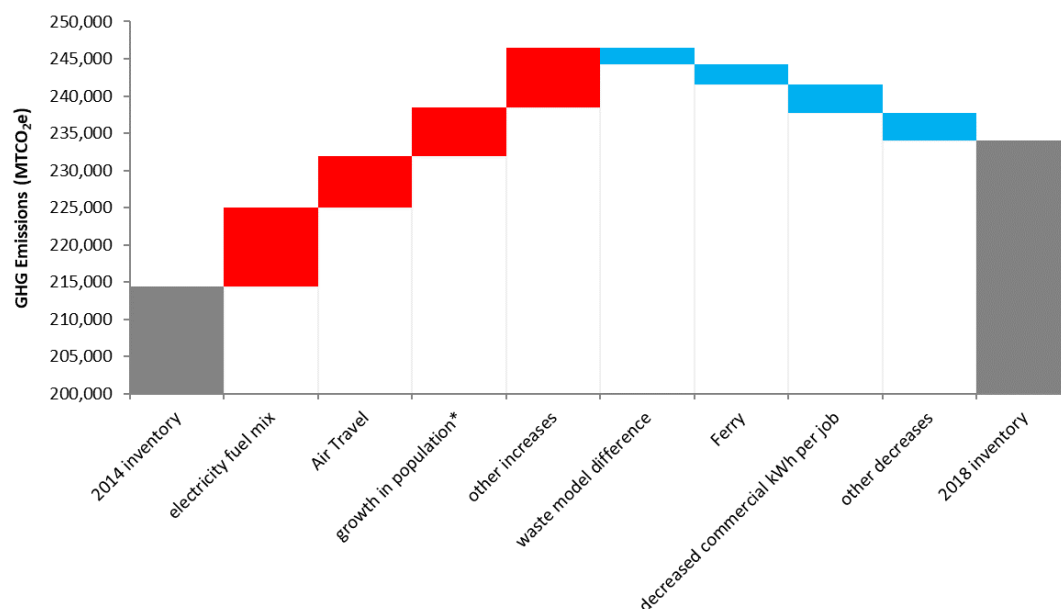
Introduction

In 2014, Bainbridge Island's 23,135 residents and 9,404 emitted approximately 214,425 MTCO₂e. In 2018, the population increased 7% (24,891), the number of households increased 4% (9,798), and communitywide emissions increased 9% (to 233,998 MTCO₂e). Apart from population growth, what drove that estimated change in emissions? We utilized the *Analyzing Drivers of Change in Greenhouse Gas Emissions Inventories* tool available from ICLEI USA to attribute changes in the community inventories to the economic, social and technological forces that influenced them.¹⁴

Results

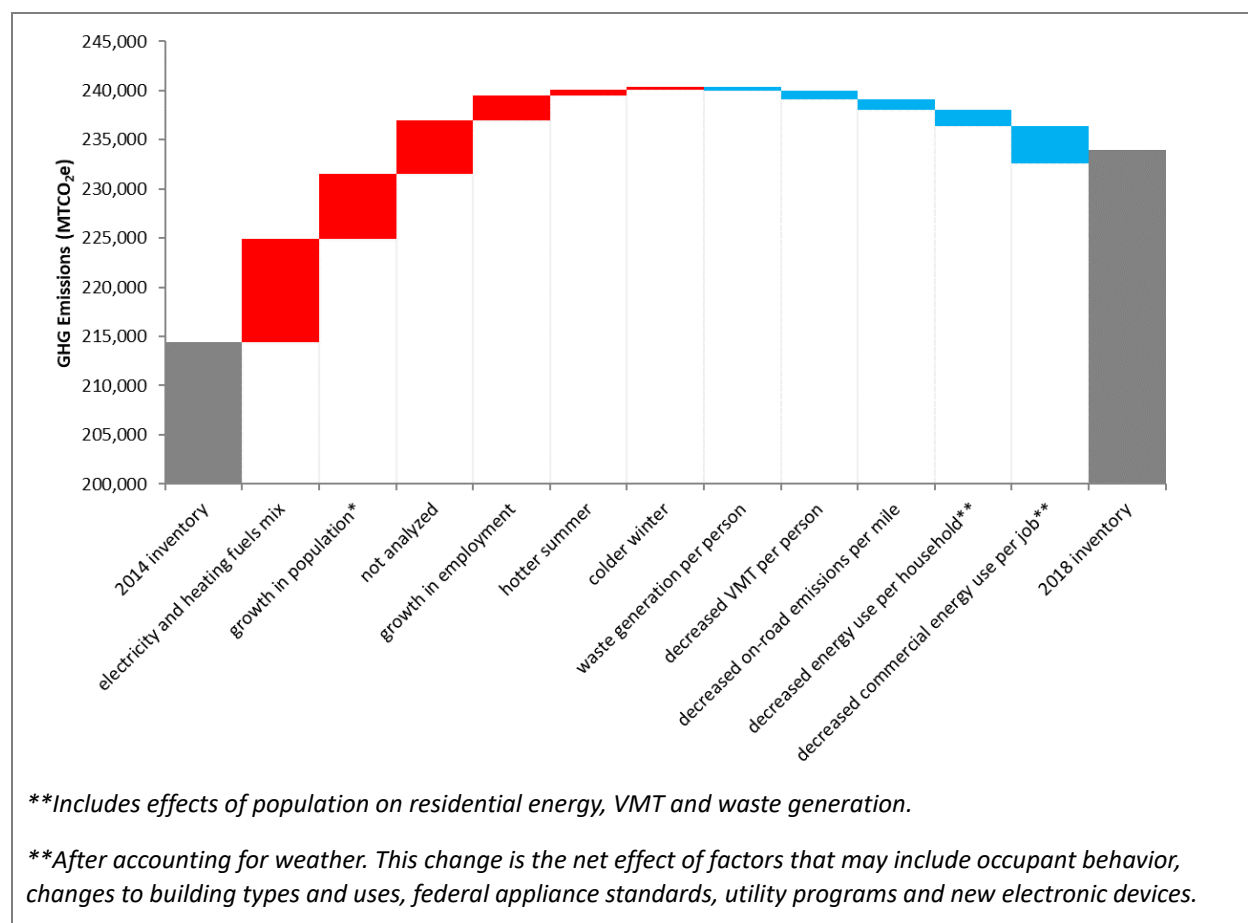
The communitywide contribution analysis highlighted factors that lead to the most significant changes in emissions between 2014 and 2018. The analysis revealed that changes to the PSE electricity fuel mix, increased activity at SeaTac airport (and, thus, higher estimated air travel emissions), and growth in population and employment all contributed to increases in emissions within the community. Conversely, downward forces on emissions included reduced ferry fuel use and more efficient driving and energy use. Figure 18 below shows the influences of the top three drivers on the two inventory years, plus a category labeled "other"—a compilation of contributors illustrated in Figure 19.

Figure 17. High-level summary of major drivers of communitywide inventory increases and decreases.



¹⁴ ICLEI USA *Analyzing Drivers of Change in Greenhouse Gas Emissions Inventories* tool. <http://icleiusa.org/ghg-contribution-analysis/> (Accessed July 1, 2019).

Figure 18. Detailed depiction of major drivers of inventory increases and decreases.



Specifically, contributors to inventory changes included the following, in order of highest increase to lowest decrease:

- **Electricity fuel mix (+10,542)** describes changes to types of resources used to generate electricity for the community. For example, increased use of renewable sources such as hydroelectricity and solar and wind power would drive emissions *decreases* in the electricity fuel mix. For Bainbridge Island, changes in the PSE electricity fuel mix contributed to *increases* in electricity emissions.
- **Growth in population (+6,581)** includes the impacts of increased housing, driving, and waste generation from Bainbridge Island's growing population. Population grew 7.1% from 23,135 in 2014 to 24,891 in 2018.
- **Not analyzed (+5,418)** describes the emissions from multiple sources—including increases in emissions from off-road vehicles, air travel, agriculture, wastewater, and refrigerant loss—that are not explicitly linked to a variable available in the tool. Due to the calculation

methodology used to estimate emissions from these sources, many of these increases can be linked to population growth, which was used as a scaling factor to estimate emissions.¹⁵

- **Growth in employment (+2,583)** describes the effect of increased job growth and GDP per person on emissions. Economic growth leads to larger consumption of goods and services, therefore resulting in emissions increases.
- **Hotter summer (+499)** is the increase emissions associated the enlarged strain on various systems due to hotter temperatures during the summer, such as increased electricity and energy consumption for residential and commercial cooling. The summer in 2018 was hotter than in 2014.
- **Colder winter (+366)** is the increase emissions associated with the amplified strain on various systems due to colder temperatures during the winter, such as increased electricity and energy use for residential and commercial heating. The winter in 2018 was colder than in 2014.
- **Waste generation per person (-386)** describes the impacts from change in the amount of waste disposed per person. In Bainbridge Island, the growth of waste generation was slower than that of population, which resulted in reduced per-person waste generation.
- **Decreased VMT per person (-919)** describes changes from people driving more or less in the community. On average, each Bainbridge Island resident drove fewer miles, resulting in emissions decreases.
- **Decreased on-road emissions per mile (-1,061)** represents changes in the amount of emissions per vehicle mile driven. These changes could be due to better driving behavior or more fuel-efficient vehicles.
- **Decreased energy use per household (-1,687)** denotes a decline in the amount of energy used by the average Bainbridge Island household. This change could be due to more energy efficient behaviors or appliances.
- **Decreased commercial energy use per job (-3,754)** incorporates the fact that job growth has increased, but a large conversion of energy efficient standards has been made throughout the commercial sector resulting in a decrease in emissions.

¹⁵ These sources are classified as “not analyzed” because population is used as a scaling factor to estimate emissions for these sources, and therefore population growth is already “baked into” the estimation. Thus, it would be inappropriate to group these sources with the “growth in population” driver.

Municipal Operation Emissions

The municipal operation emissions inventory accounts for the GHG emissions resulting from Bainbridge Island City government operations. Bainbridge Island's government provides a range of municipal services including police, streets, planning, zoning, and general administration services. The City also operates the water and wastewater utilities for a portion of the island.

Table 14 below provides an outline of the various emissions sources included in the municipal inventory, paired with their respective Scope. The table also specifies which sectors are required by the *Local Government Operations Protocol*.

Table 13. Municipal inventory emissions and scope categories.

Emissions Type	Required?	Scope 1	Scope 2	Scope 3
Buildings and Facilities Energy				
Electricity	x		✓	
Stationary Fuel Consumption	x	✓		
Streetlights and Traffic Signals	x		✓	
Transportation				
On-Road Fleet Vehicles	x	✓		
Off-Road vehicles	x	✓		
Employee Commute				✓
Business Travel				✓
Solid Waste, Potable Water, and Wastewater				
Solid Waste				✓
Wastewater Treatment	x	✓		
Refrigerant Leakage	x	✓		

RESULTS

Overview

Bainbridge Island's 2014 municipal-based GHG inventory totaled 2,067 MTCO₂e. Municipal emissions in 2018 increased 11% to 2,291 MTCO₂e. Major emissions sources in 2018 included facility electricity consumption (60%) and on-road fleet vehicles (17%) (see Table 15).

Transportation and electricity also contributed some of the largest increases in emissions from 2014 to 2018. Municipal facility electricity and on-road fleet vehicles increased by 14% and 7%, respectively. Just four facilities accounted for 80% of all facility electricity use: Bainbridge Island Waste Water Treatment Plant (WWTP), City Hall, Fletcher Bay: Well Field, and Bainbridge Island Public Works Operations and Maintenance Yard. There were a few sectors with decreases in emissions, the largest of which was from streetlight and traffic signal improvements.

Table 14. Municipal GHG emissions by year, sector, and scope.

Sector	Scope	GHG Emissions (MTCO ₂ e)	
		2014	2018
Building Propane	1	40	40
On-Road Fleet Vehicles	1	359	385
Off-Road Vehicles	1	77	63
Refrigerant Loss	1	18	18
Wastewater Treatment Plant	1	40	43
Electricity	2	1,212	1,383
Street Lights & Traffic Signals	2	103	91
Solid Waste Generation	3	59	84
Employee Commute	3	160	184
Business Travel	3	-	-
Total		2,067	2,291

Figure 19. Municipal emissions, by source and scope, for 2018 (total = 2,291 MTCO₂e).

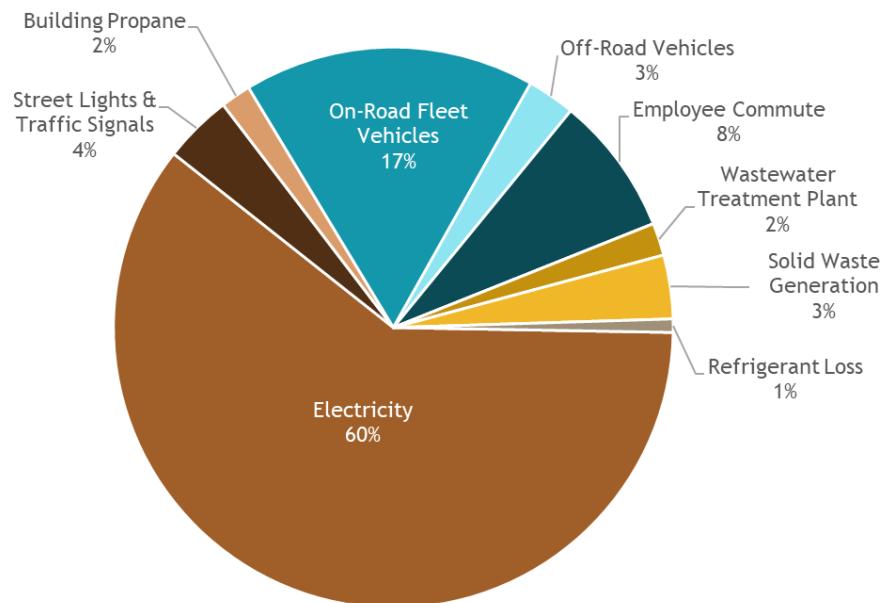
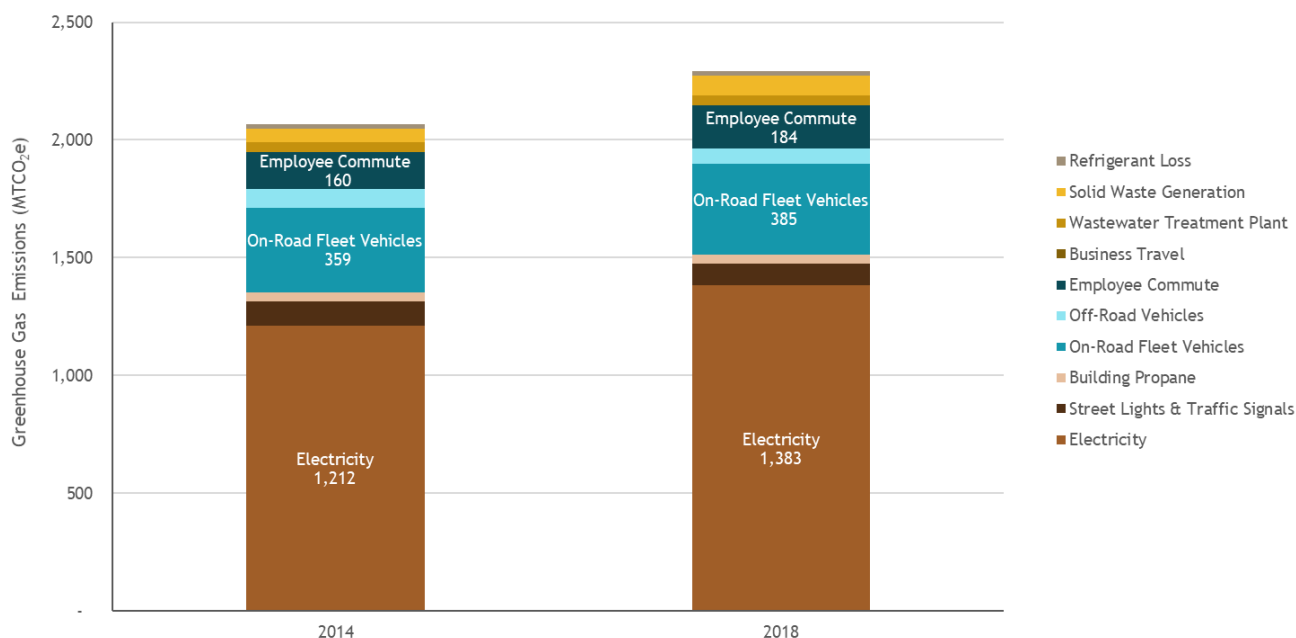


Figure 20. Bainbridge Island municipal emissions, by year and source.

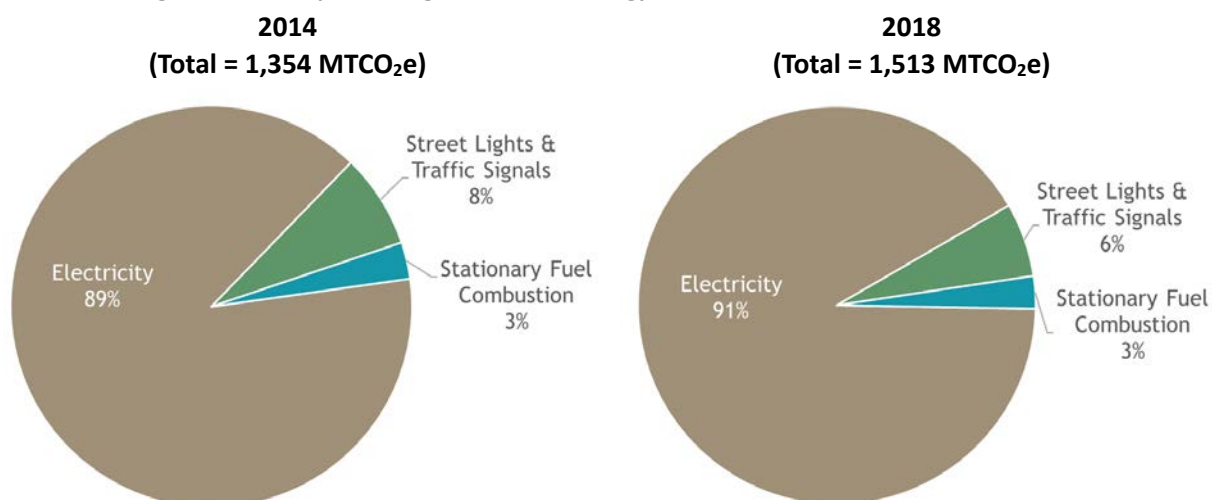


Buildings and Facilities Energy

The City of Bainbridge Island operates several government administration buildings, including City Hall, the Police Station, the Municipal Court, and a maintenance yard, as well as several community spaces, a wastewater treatment facility, and the streetlights and traffic signals throughout the City. This section details the GHG emissions resulting from the consumption of energy at these buildings and facilities. The types of energy consumed at these locations include electricity, provided by Puget Sound Energy, and propane, which is combusted in stationary equipment on-site.

In 2018, energy consumption at City of Bainbridge Island buildings and facilities accounted for 66% of total municipal GHG emissions. Building electricity usage accounted for the bulk of emissions, comprising 89% and 91% of the energy sector's emissions in 2014 and 2018, respectively (see Figure 22). From 2014 to 2018, building and facility electricity emissions grew by 14%, primarily due to fluctuations in the electricity utility fuel mix (see *Electricity* section below). The following sections provide greater detail on trends for the three sources of building and facility energy use: electricity, stationary fuel combustion, and streetlights and traffic signals.

Figure 21. Bainbridge Island municipal buildings and facilities energy emissions.



Electricity

Electricity usage contributed the largest portion of GHG emissions within the City's buildings and facilities sector, resulting in the emission of 1,212 MTCO₂e in 2014 and 1,383 MTCO₂e in 2018. Between 2014 and 2018, electricity emissions grew by 14%. However, electricity usage in kWh only grew by 4% within this same time period. This indicates that the growth in emissions between 2014 and 2018 was primarily due to fluctuations in the electricity utility fuel mix (i.e., changes in the proportion of fossil fuel sources used by the utility to generate electricity in a given year) rather than substantial increases in electricity usage.

The two facilities with the greatest electricity usage in both years were the wastewater treatment facility (WWTP) and City Hall. These two facilities also experienced the greatest *reductions* in electricity usage between 2014 and 2018, demonstrating that the City is continuing to make progress on energy efficiency and conservation in the highest consumption facilities (see Figure 23 Figure 24 below). One way the City has reduced electricity usage at City Hall is through on-site solar electricity production: the solar panels at City Hall produced 71,300 kWh and 74,500 kWh of solar electricity in 2014 and 2018, respectively.

Figure 22. Top electricity-using facilities in 2018.

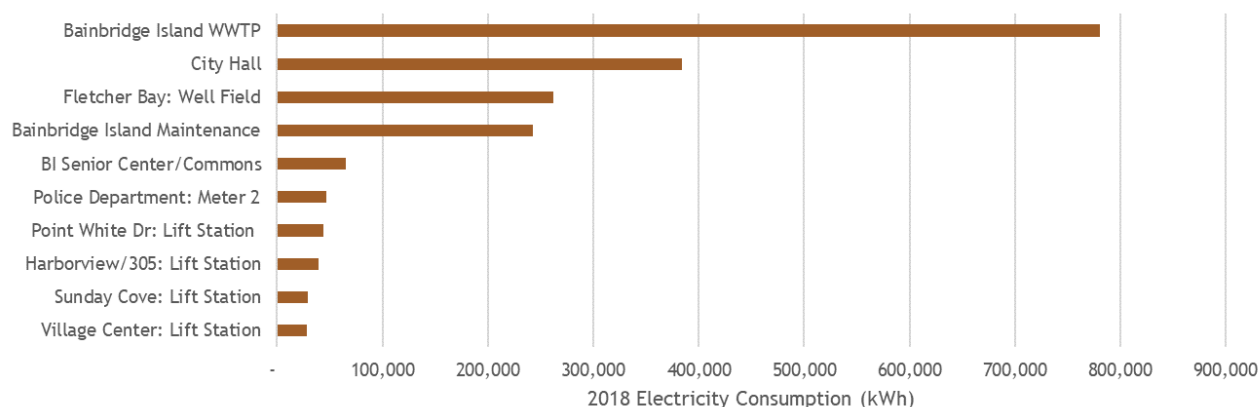


Figure 23. Facilities with the greatest electricity consumption *increases* between 2014 and 2018.

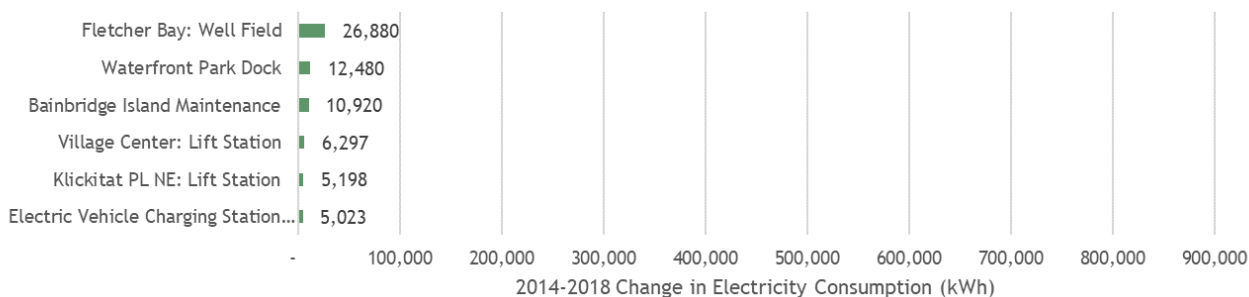
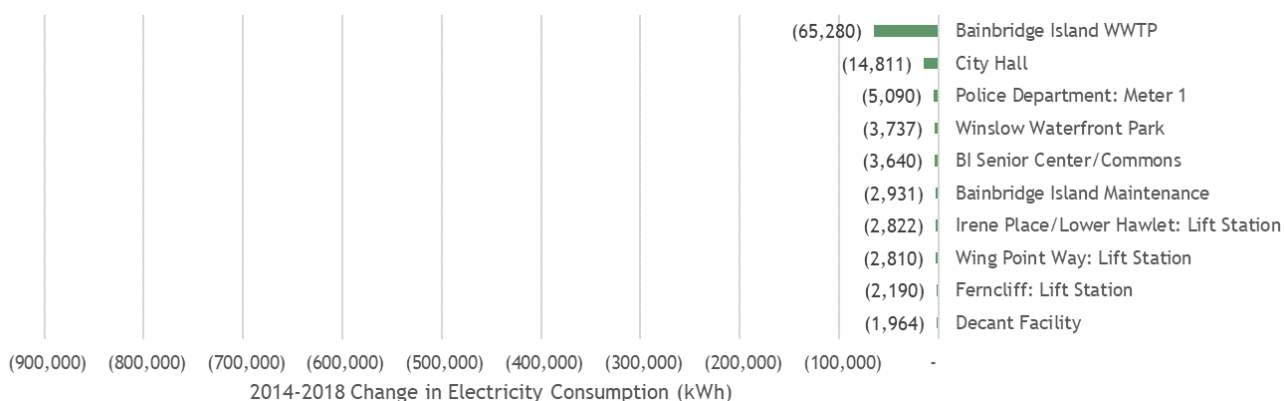


Figure 24. Facilities with the greatest electricity consumption *decreases* between 2014 and 2018.



Stationary Fuel Combustion

Stationary fuel (propane) combustion was the lowest contributor to building-related municipal GHG emissions in both 2014 and 2018. Between both years, emissions remained constant at 40 MTCO₂e. The only source for stationary fuel combustion is the Public Works Operations and Maintenance shop, which consumed an estimated 7,077 gallons of propane for heating. The number of gallons consumed remained constant from 2014 to 2018 and therefore resulted in no change in emissions.

Streetlights and Traffic Signals

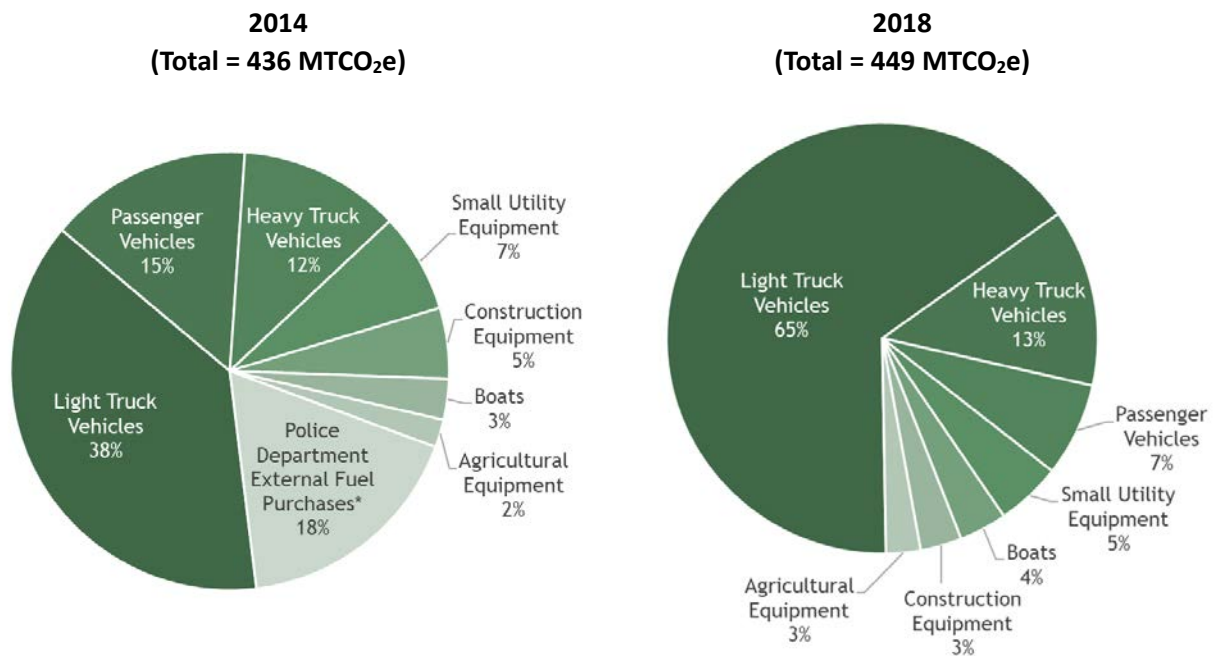
The second largest contributor to GHG emissions 2018 were streetlights and traffic signals. Between 2014 and 2018, the City of Bainbridge Island increased the number of streetlights from 328 to 343. However, the emissions produced and electricity consumed by the streetlights has decreased by 12%. This decrease can be attributed to the City's increased use of energy efficient bulbs.

Transportation

Transportation sector emissions are the third largest contributor to the City of Bainbridge Island's municipal emissions. This section details the GHG emissions resulting from the consumption of gasoline, diesel, biodiesel, and propane in various vehicles. These vehicles are a part of numerous city operations, such as emergency services, landscaping, and government travel.

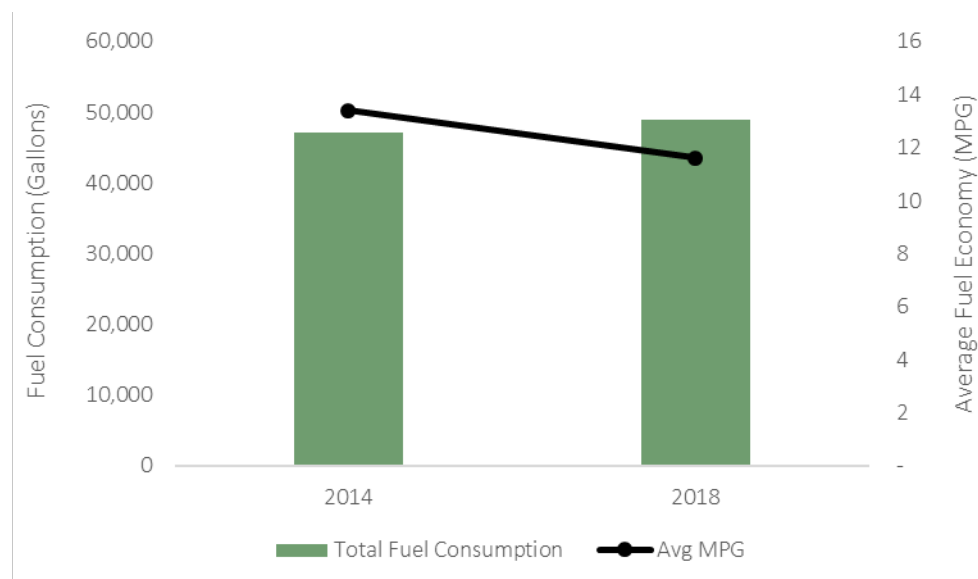
In 2018, the transportation sector contributed 28% of all emissions, totaling 663 MTCO₂e. The City of Bainbridge Island utilizes fuel for different vehicles such as boats, pickup-trucks, dump trucks, construction equipment, and patrol vehicles (see Figure 26). Municipal fuel consumption and emissions increased between 2014 and 2018, and there was a small decrease in fuel economy. Between 2014 and 2018, average municipal fuel economy decreased from 13 mpg to 12 mpg (see Figure 27).

Figure 25. City of Bainbridge Island fleet vehicle emissions, by type.



* Refers to police department fuel purchased outside of O&M. This data is not connected to specific vehicle types.

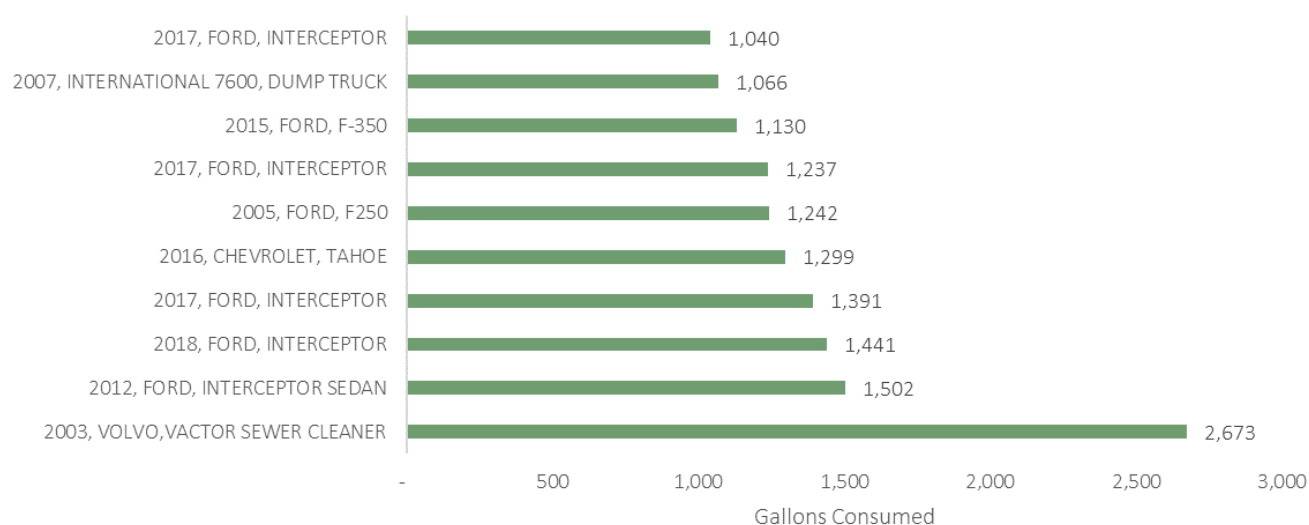
Figure 26. Municipal fleet fuel consumption and average fuel economies, by year.



On-Road Fleet Vehicles

On-road vehicles made up the majority of transportation emissions in 2014 and 2018. Emissions come from on-road fleet vehicles driving on roadways within the community. In 2018, on-road vehicles consisted of 61% of all transportation sector emissions. We estimate that municipal on-road vehicles produced 359 MTCO₂e and 385 MTCO₂e in 2014 and 2018, respectively. The 2003 Volvo Vactor Sewer Cleaner consumed the greatest amount of fuel both years (1,518 gallons of diesel in 2014 and 2,673 gallons in 2018). The Patrol/Interceptor vehicles sector contained the largest number of fuel-consuming vehicles. Figure 28 presents the top-10 fuel consuming vehicles in 2018.

Figure 27. Top 10 fuel-consuming fleet vehicles, 2018.



Off-Road Vehicles

Off-road equipment, such as lawnmowers, boats, and forklifts, contribute another 10% of transportation sector emissions in 2018. There was a 17% reduction in emissions between 2014 and 2018, from 77 MTCO₂e to 63 MTCO₂e. Reductions in emissions are from reduced fuel consumption, decreasing from 7,730 gallons in 2014 to 6,474 gallons in 2018.

Employee Commute

Employee commute includes single-occupancy vehicles (SOV), vanpools and carpools. In 2014, employee commuting produced an estimated 160 MTCO₂e from 486,922 VMT. There were 106 full-time equivalent municipal employees, resulting in 1.51 MTCO₂e emitted per employee. The emissions increased in 2018 to 184 MTCO₂e. This was a consequence of an increase in VMT to 646,027. In 2018, there were 119 full-time equivalent employees for the city with only a small increase to 1.55 MTCO₂e per person.

Solid Waste and Wastewater

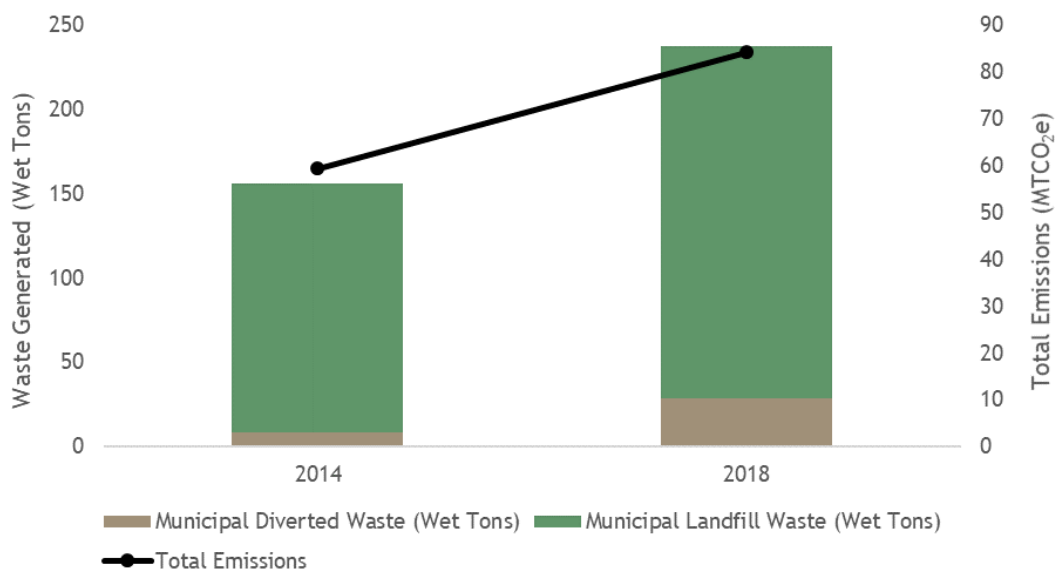
Waste sector includes emissions from solid waste generation and biological process emissions related to wastewater treatment—detailed below.

Solid Waste

Solid waste is comprised of municipal landfill waste and municipal diverted waste (recycling, cardboard, and yard waste). We estimate that emissions from waste increased from 59 MTCO₂e in 2014 to 84 MTCO₂e in 2018. Much of this increase can be attributed to additional service at the Waterfront Park and downtown areas. An increase in foot traffic in the Winslow downtown area, as well as the reconstruction of the Waterfront Park and City Dock, required the installation of more waste receptacles in these areas. We estimate that 147 tons of waste was sent to the landfill in 2014 and that amount increased to 209 tons in 2018.

Between 2014 and 2018, the amount of diverted waste increased from 8.6 tons to 28.8 tons. Yard waste in particular, increased from 2.1 tons in 2014 to 3.9 tons in 2018. This increase in yard waste composting contributed to a slight increase in emissions within the diverted waste category, from 0.15 MTCO₂e to 0.27 MTCO₂e (Figure 29).

Figure 28. Municipal solid waste disposal trends.



Wastewater Treatment

The City owns and operates the Winslow Wastewater Treatment Plant and operates collection for the South Island Sewer System. The Winslow Sewer System serves the historic downtown Winslow area and the South Island Sewer System serves the Lynwood Center, Point White, Pleasant Beach, Emerald Heights, Blakely School, and Rockaway Beach neighborhoods. The collection systems have a combined infrastructure that includes emergency generators, manholes, residential grinder pumps and sewage pump stations.

In 2018, emissions from wastewater treatment totaled an estimated 43 MTCO₂e. This was a 7% increase from 2014 when emissions were 40 MTCO₂e. This can be attributed to the increase in population served from 4,743 in 2014 to 5,079 in 2018.¹⁶

Refrigerant Leakage

Leaks in refrigeration systems cause emissions of potent greenhouse gases. These losses can occur in domestic refrigeration, commercial refrigeration, industrial refrigeration, chillers, and residential/commercial air conditioning units. Refrigerant gases differ in their Global Warming Potential (GWP)—the amount of heat a greenhouse gas traps in the atmosphere relative to carbon dioxide. Emissions from R-22 leaks, for example, are especially impactful: they have a GWP 1,760, which means that they are over one thousand times more damaging than carbon dioxide. The City's heating and cooling systems largely use R-22, which we estimate produces 18 MTCO₂e per year.

¹⁶ Service populations were estimated at 25% of the total Bainbridge Island population, as estimated by Bainbridge Island City staff.

DATA SOURCES AND METHODOLOGY

The municipal emissions inventory involved acquiring the following data types, summarized in Table 16 and detailed in the following sections:

- ▶ **Activity data** that quantifies levels of activity that generate GHG emissions, such as miles traveled, and kWh of electricity consumed.
- ▶ **Emissions factors** that translate activity levels into emissions (e.g., MgCO₂e per kWh).

Data quality is assessed and reported on a High (H), Medium (M), and Low (L) scale in accordance with GHG inventory best practices:

- ▶ A *High* rating indicates data are detailed and specific to the local geography
- ▶ A *Medium* rating indicates data are more general or modeled with robust assumptions and may not be specific to the local geography, but are downscaled from a slightly broader geography (e.g., state-level)
- ▶ A *Low* rating indicates data are highly modeled, uncertain, or a default value was used based on national characteristics.

Table 15. Key data sources for the City of Bainbridge Island's municipal inventory.

Sector	Activity Data (AD)	AD Quality	Emissions Factors (EF)	EF Quality
Buildings and Facilities Energy				
Electricity	kWh consumption compiled from PSE bills	H	PSE reported emissions factors (PSE Greenhouse Gas Inventory, 2014 & 2017, Table 7.1)	H
Stationary Fuel Combustion	Gallons of propane used for heating compiled based on municipal purchasing information provided by O&M	M	Emissions factors provided in ClearPath program	M
Streetlights and Traffic Signals	- Quantity, type, and wattage of each streetlight and traffic signal transcribed from PSE bills - Installed wattage used to estimate electricity consumption in kWh	M	PSE reported emissions factors (PSE Greenhouse Gas Inventory, 2014 & 2017, Table 7.1)	H
Transportation				

Sector	Activity Data (AD)	AD Quality	Emissions Factors (EF)	EF Quality
On-Road Fleet Vehicles	- Fuel volumes by vehicle and type, along with annual miles traveled, provided by Public Works staff - Where fuel volumes and miles traveled were unavailable for specific vehicles, the total quantity of fuel purchased was provided (with no vehicle information associated)	H	- CO₂ emission factors provided in ClearPath program - CH₄ and N₂O average emissions factors for each vehicle and fuel type were calculated based on the model year composition of the municipal fleet vehicles - Emissions factors used in these calculations were derived from the EPA (2017) Inventory of U.S. Greenhouse Gas Emissions and Sinks (Climate Leadership Resource)	H
Off-Road Vehicles	- Fuel volumes by vehicle and type, along with annual hours of use, provided by Public Works staff - Where fuel volumes were unavailable for specific vehicles, the total quantity of fuel purchased was provided (with no vehicle information associated)	H	- Emissions factors provided in ClearPath program - Emissions factors for off-road vehicle/equipment propane use were missing from the ClearPath program; these emissions were calculated separately using emissions factors derived from the EPA (2017) Inventory of U.S. Greenhouse Gas Emissions and Sinks (Climate Leadership Resource)	M
Employee Commute	MTCO₂e obtained from Commute Trip Reduction survey conducted by WSDOT	M	N/A; value converted to MTCO₂e by WSDOT	N/A
Solid Waste and Wastewater				
Solid Waste Generation	- Bin sizes, pickup frequency, and waste type were transcribed from solid waste bills - Estimated cubic yards of waste were then converted to tons using EPA solid waste weight conversions - This methodology assumes all waste pickup containers were full	L	- Waste characterizations from King County multifamily and commercial buildings used to estimate Bainbridge Island municipal waste composition - ClearPath default emissions factors used to estimate all future methane emissions resulting from the decomposition of each waste type	L
Wastewater Treatment Facility	- Wastewater treatment facility processes determined based on desktop research and confirmed with city staff - Population served by wastewater treatment facility estimated by multiplying the number of sewer connections (city staff) by the average household size (ACS)	M	- Local Government Operations Protocol equations 10.8 and 10.10 used to calculate N₂O emissions - CH₄ emissions were not applicable since the system is aerobic	L
Refrigerant Leakage				

Sector	Activity Data (AD)	AD Quality	Emissions Factors (EF)	EF Quality
Refrigerant Leakage from Building Heating and Cooling Equipment	- List of heating/cooling equipment provided by city staff - Equipment categorized by type and refrigerant used	L	Emissions calculated using Equation 6.35 and the default factors in Table 6.4 of the Local Government Operations Protocol	L

Buildings and Facilities Energy

- ▶ We acquired **electricity consumption** data by hand transcribing individual monthly PSE electricity bills for the City of Bainbridge Island's municipal operations. City staff photocopied and provided these bills.
- ▶ In 2018, gallons of **propane** used to heat the **maintenance shop** were tracked in City records. However, only cost information was tracked in 2014. Based on the comparison of cost information between the two years, City staff estimated the propane use at this facility was the same in 2014 and 2018.
- ▶ **Propane usage** in an emergency generator at the Senior Center was omitted from the 2014 and 2018 inventories. In 2014, the generator was not maintained by the City and in 2018 the generator was not used.
- ▶ We estimated the total **electricity usage of streetlights and traffic signals** operated by the City of Bainbridge Island by counting the number, wattage, and types of streetlights and traffic signals included in the individual monthly PSE electricity bills. We used Equation 6.15 in the *Local Government Operations Protocol* to convert wattage to estimated electricity consumption in kWh. We assumed an average daily operating time of 12 hours for streetlights and 8 hours for traffic signals.

Transportation

- ▶ We categorized the list of **on-road and off-road vehicles** and equipment into standard vehicle types (i.e., passenger car, light-duty truck, heavy-duty truck, etc.) based on provided vehicle descriptions and make/model information. We totaled fuel gallons and vehicle miles traveled by each vehicle category and type of fuel. CO₂ emissions were derived based on usage volumes by type of fuel and ClearPath default emissions factors. CH₄ and N₂O emissions were derived based on miles traveled by vehicle category and fuel type. We used CH₄ and N₂O emissions factors for each vehicle category-fuel type combination originally derived from the *EPA (2017) Inventory of U.S. Greenhouse Gas Emissions and Sinks* and modified these factors to reflect the municipal fleet age composition.
- ▶ One forklift within the municipal fleet used **propane**. However, propane is not an available fuel type for off-road equipment in the ClearPath program. Therefore, we calculated propane emissions outside of ClearPath using emissions factors derived from the *EPA (2017) Inventory of U.S. Greenhouse Gas Emissions and Sinks*.
- ▶ We obtained total emissions (in MTCO_{2e}) associated with **employee commuting** from the *Commute Trip Reduction Survey* conducted by WSDOT.

Solid Waste and Wastewater

- ▶ We acquired **waste generation** data by hand transcribing individual monthly Bainbridge Disposal bills for the City of Bainbridge Island's municipal operations. City staff photocopied and provided these bills.
- ▶ Waste bills generally indicated the disposal bin volume, the pickup frequency, and the waste stream (i.e., recycling, yard waste, trash, etc.). We assumed that waste bins were full at time of pickup and

that waste described as recycling or cardboard was recycled, waste described as yard waste was composted, and waste described as trash was landfilled. We converted annual volumes of waste by type into tons of waste by type using EPA solid waste weight conversions. We then used King County waste composition information and ClearPath default emissions factors to estimate emissions associated with **waste generation and composting**.

- ▶ We estimated **wastewater treatment N₂O emissions** using Equation 10.7 and 10.10 of the *Local Government Operations Protocol*. Population served was estimated by Bainbridge Island City staff. Default nitrogen load information was used since local data was not available.

Refrigerant Leakage

- ▶ We acquired a list of **heating/cooling equipment** used in municipal buildings from Bainbridge staff. We did an online search of the equipment models and serial numbers to determine how to best categorize each piece of equipment. Using these categorizations, we estimated emissions from refrigerant leakage using Equation 6.35 and Table 6.4 of the *Local Government Operations Protocol*.

Considerations

There is some degree of uncertainty in any GHG inventory. This uncertainty can come from incomplete data, but it can also result from uncertainty in the methodology or emissions factors used in calculating units of activity (e.g. gallon of fuel, kilowatt-hour of electricity, short ton of solid waste) into CO₂-equivalent emissions. These considerations should inform future inventory and reporting efforts, including prioritization of additional data collection, understanding of inventory results, and in the development of mitigation goals and monitoring systems.

Considerations for the municipal operations inventory include:

- ▶ **Electricity consumption:** The hand transcribing of electricity and waste bills introduces a greater potential for human error.
- ▶ **Streetlight and traffic signal daily operations:** Assumptions made on average daily operating time could affect electricity consumption amounts.
- ▶ **Employee commuting emissions:** WSDOT modeled the *Commute Trip Reduction Survey*, therefore the methodology, such as emissions factors assumed for passenger vehicles, could be different from those used for community passenger vehicles.
- ▶ **Municipal vehicle fleet:** Some municipal fleet vehicles and equipment are fueled by bulk fuel purchases or mobile fueling tanks. In these instances, we had to estimate vehicle miles traveled and vehicle composition, potentially affecting the CH₄ and N₂O calculations.
- ▶ **Solid waste generation:** Disposal frequency can be difficult to determine from solid waste bills—which was the only data available to deduce solid waste disposal amounts. We also lacked data on the amount of waste included in each disposal bin at the time of pickup, we assumed all bins were full. The hand transcribing of waste bills introduces a greater potential for human error.
- ▶ **Solid waste characterization:** Bainbridge Island lacked a local waste characterization study, therefore, we applied King County waste characterization data to estimate the relative proportions of different materials in the waste stream. The waste composition for Bainbridge Island may be different than for King County.
- ▶ **Wastewater treatment:** Due to limitations in local data availability, the calculations used were default national values based on the treatment method.

MUNICIPAL CONTRIBUTION ANALYSIS

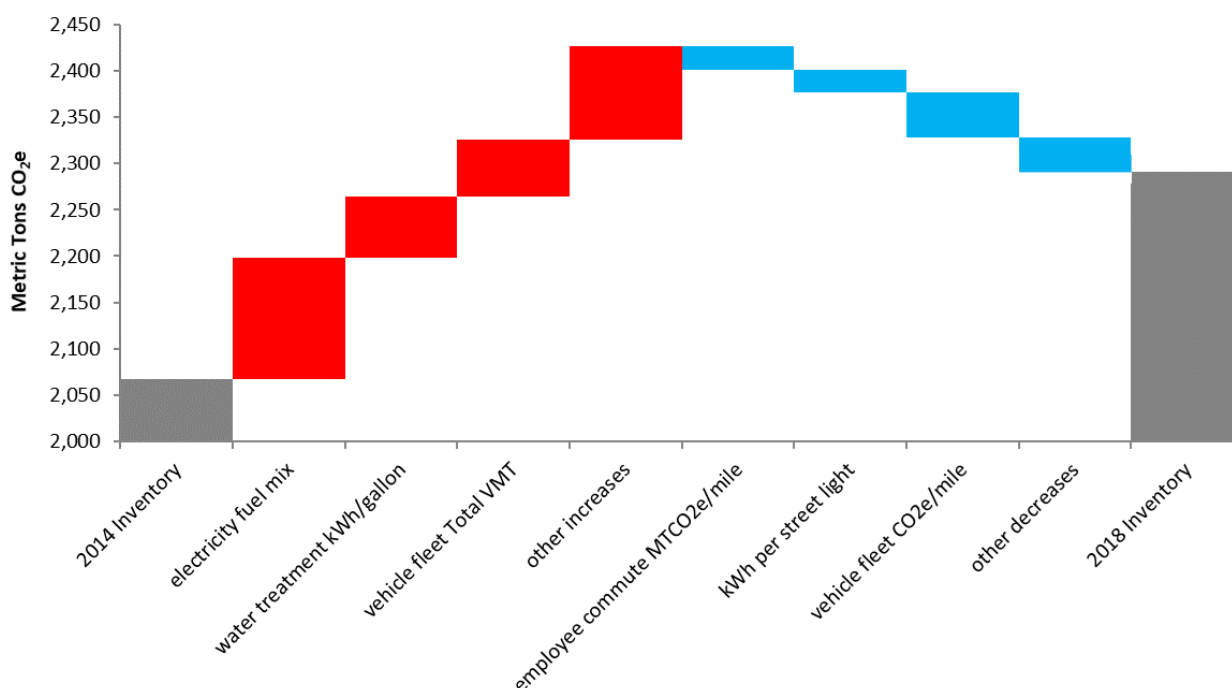
Introduction

In 2014, total municipal emissions were 2,067 MTCO₂e. In 2018, total emissions increased to 2,291 MTCO₂e, resulting in a 11% (223 MTCO₂e) increase from the 2014 inventory. We employed the *Analyzing Drivers of Change in Greenhouse Gas Emissions Inventories* tool available from ICLEI USA to attribute changes in the municipal inventories to the economic, social and technological forces that caused them.¹⁷ The primary goal of this tool is to provide a methodology for discovering the drivers for change between the two inventory years.

Results

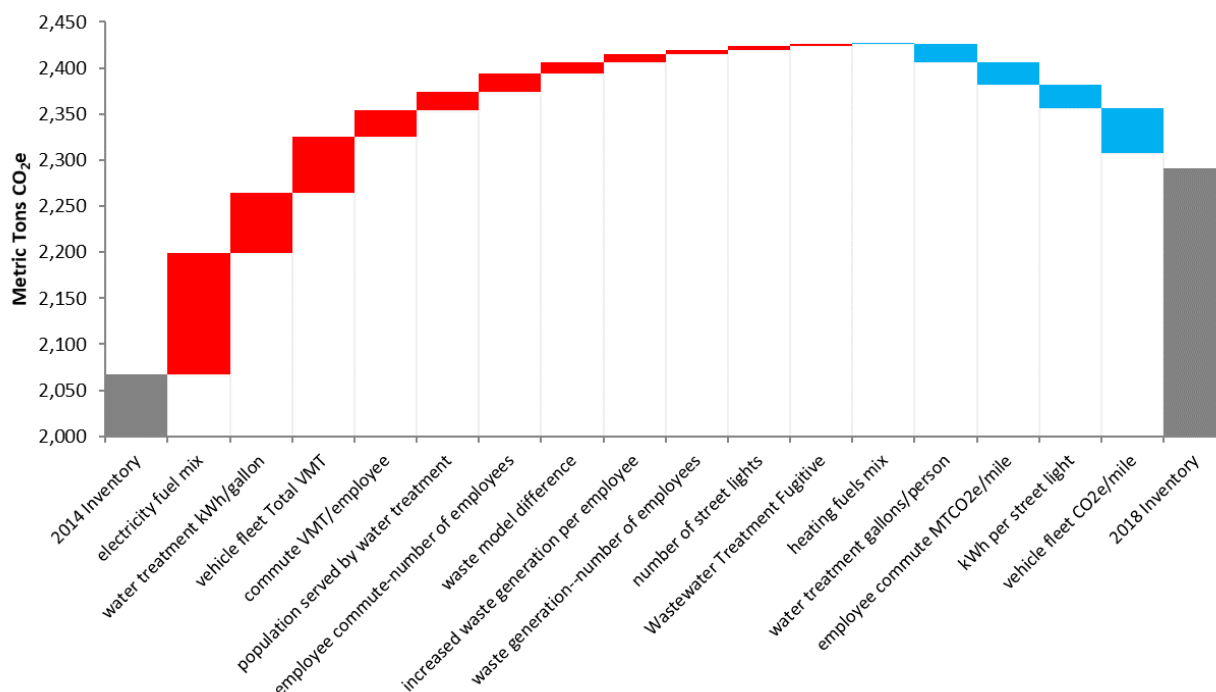
The contribution analysis revealed the factors that led to the net increase in emissions between 2014 and 2018. In summary, a lower-renewables electricity fuel mix as reported by Puget Sound Energy, increased water treatment electricity use, and increased use of fleet vehicles all contributed to emissions increases. Reductions were due to more carbon-efficient employee commuting, more energy-efficient streetlights, and increased fuel economy of the vehicle fleet. Figure 30 shows the influences of major forces on the inventory between 2014 and 2018, and Figure 31 presents a more detailed depiction.

Figure 29. High-level summary of major drivers of government operations inventory increase and decreases.



¹⁷ ICLEI USA *Analyzing Drivers of Change in Greenhouse Gas Emissions Inventories* tool. <http://icleiusa.org/ghg-contribution-analysis/> (Accessed July 1, 2019).

Figure 30. Detailed depiction of contributions to change for Bainbridge Island government operations GHG emissions.



Contributors to inventory changes included the following, in order from highest increases to lowest decreases:

- **Electricity fuel mix (+131 MTCO₂e)** describes changes to types of resources used to generate electricity for the community. For example, increased use of renewable sources such as hydroelectricity and solar and wind power would drive emissions *decreases* in the electricity fuel mix. For Bainbridge Island, changes in the PSE electricity fuel mix contributed to *increases* in electricity emissions.
- **Water treatment kWh/gallon (+66 MTCO₂e)** includes changes in the energy efficiency of processing wastewater.
- **Vehicle fleet total VMT (+61 MTCO₂e)** describes the increased emissions due to a rise in total vehicle miles traveled for municipally owned vehicles.
- **Other increases (+103 MTCO₂e)** is a compilation of changes in: population served by water treatment, number of employees commuting, waste generation per employee, and number of streetlights.
- **Employee commute MTCO₂e/mile (-25 MTCO₂e)** represents more efficient commuting behaviors, possibly by changes in mode, distance, or vehicle efficiency.
- **kWh per street light (-25 MTCO₂e)** incorporates the fact that streetlight and traffic signal numbers have increased, but a large conversion to LED prior to 2018 reduced electricity use and emissions.

- **Vehicle fleet CO₂e/mile (-48 MTCO₂e)** is the reduction in emissions associated with reduced gasoline consumption in newer vehicles meeting more stringent federal standards, as well as the retiring of older, less fuel-efficient vehicles.
- **Other decreases (-21 MTCO₂e)** includes decreased emissions from changes in the type of heating fuels used and less wastewater produced per-person.

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 greenhouse gas. Residents of Bainbridge Island who consume beef contribute to the emissions from these cows—even if the cows are raised outside the island. This section presents estimated emissions associated with the purchasing decisions made by Bainbridge Island households.

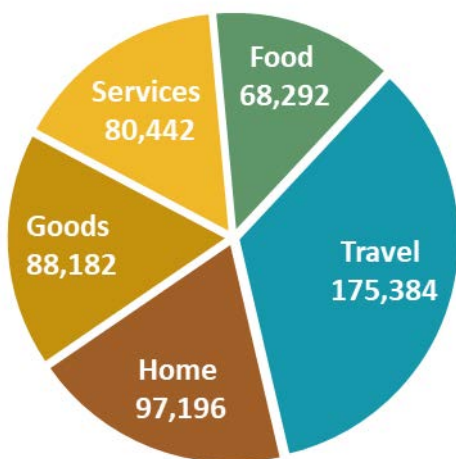
Consumption-based emissions are provided on a *per-household* basis because a household is the economic unit used in the underlying analyses (in other words, the analytical approach is based on household, not individual, purchasing trends and decisions). For example, food and home goods are generally purchased by one person for the use of their entire household.

RESULTS

Overview

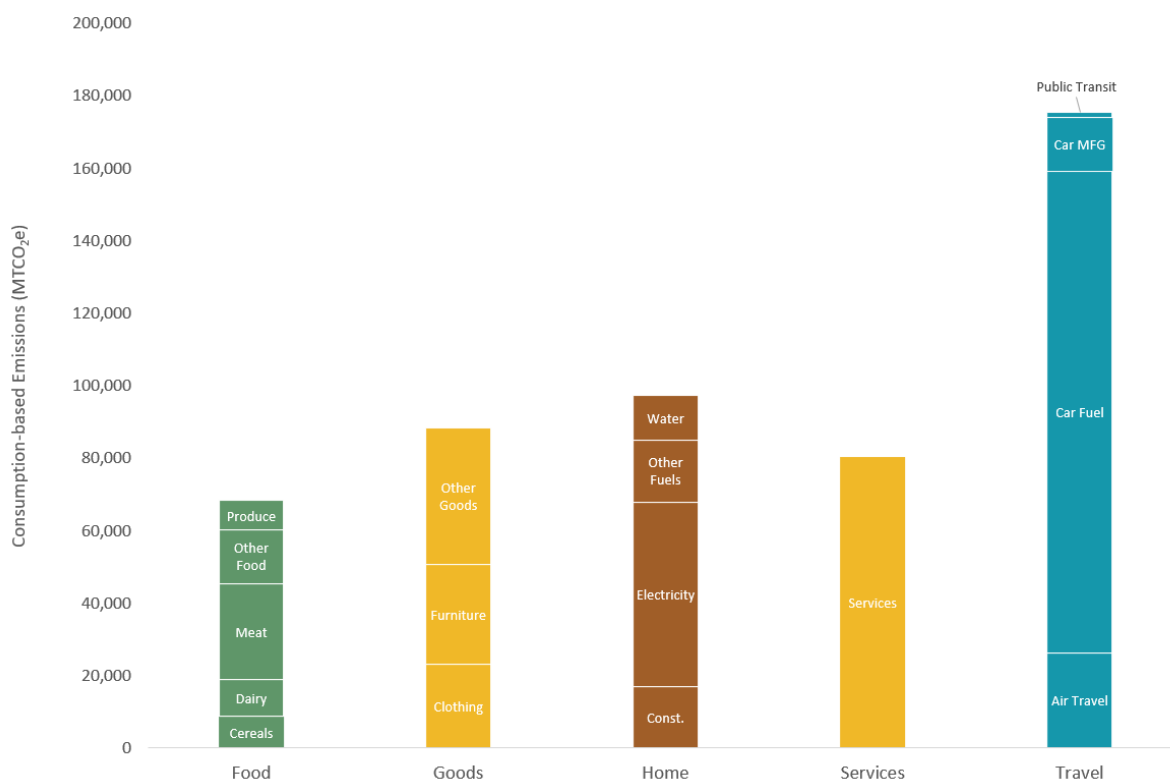
Results from a household-based economic modeling tool suggest that the average Bainbridge Island household emits 52 MTCO₂e a year through their purchasing behaviors.¹⁸ There were an estimated 9,404 and 9,798 households on Bainbridge Island in 2014 and 2018, respectively, indicating that total consumption-based emissions from all households on Bainbridge Island could have reached approximately 510,000 MTCO₂e in 2018. Major drivers include the purchase of meat, furniture, clothing, home energy, and travel-related expenses such as car fuel and air travel (see Figure 32 and Figure 33).

Figure 31. Estimated 2018 consumption-based emissions for Bainbridge Island (total = 509,496 MTCO₂e).



¹⁸ 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.

Figure 32. Estimated annual individual household consumption-based emissions for Bainbridge Island residents (total = 52 MTCO₂e/year).



DATA SOURCES AND METHODOLOGY

Because consumption-based inventories are inevitably coarse in scale compared to other inventory sectors, we used readily available sources to estimate Bainbridge Island’s consumption-based emissions. Specifically, we used UC Berkeley’s CoolClimate Calculator, which employs an Economic Input-Output Life Cycle Assessment model (EIO-LCA), designed by Carnegie Mellon University, and the Comprehensive Environmental Database Archive to calculate consumption-based emissions. This model employs an economy-wide model of cradle-to-grave emissions of all major greenhouse gases for over 400 economic sectors of the economy.

Considerations

The CoolClimate Calculator largely uses national-level data to estimate emissions associated with purchased goods and services. This means that more locally-specific emissions factors—such as those associated with the electricity we purchase—are not incorporated. For Bainbridge Island, that may mean that the calculator is slightly overestimating household emissions, since the Puget Sound Energy electricity fuel mix is different than the national average. However, the calculator does use regionally-specific economic data to characterize spending habits.

Conclusion and Next Steps

These GHG inventories provide a **solid and informative foundation** for taking climate action:

- ▶ The **Bainbridge Island community** now understands its major contributors of GHG emissions—residential electricity, non-residential electricity, on-road vehicles, and air travel—revealing major sectors to focus climate action efforts. Conducting inventories for two years also revealed emissions trends: a 9% increase between the two inventory years as well as increased emissions in almost all sectors. The community could consider approaches for addressing emissions sources that are increasing, such as increasing electric vehicle uptake, incentivizing alternatives to air travel, continuing to increase building use efficiency, and reducing growth. The contribution analysis also provided insight into the underlying drivers of these trends: we learned that continuing to push for lower-emissions electricity sources will be important for lowering Bainbridge Island’s climate impact.
- ▶ The **City of Bainbridge Island** now understands its key drivers of greenhouse gas emissions—transportation, electricity, and wastewater treatment—which highlight key areas for reduction. The inventories for the two years demonstrated an upward trend in emissions, similar to the community inventory. Between 2014 and 2018, a 11% increase in emissions occurred. The municipal contribution analysis highlighted the drivers of these trends: changes in electricity fuel mix, water treatment operations, and vehicle fleet usage. The City of Bainbridge Island did see small reductions in streetlight and traffic signal use and fleet vehicle fuel economy. The City can consider actions for reducing emissions from increasing sources, such as transferring to a low-carbon electricity fuel mix and decreasing the amount of vehicle travel.
- ▶ **Bainbridge Island households** learned the impact of spending habits—an estimated 52 MTCO₂e of emissions per year, on average. The consumption-based inventory also exposed key contributors to that footprint: meat consumption, travel expenses, and the purchase of furniture, clothing, and energy. Bainbridge households could consider behavior changes to lower these emissions, such as switching to a low-carbon diet—which includes more vegetables, fruits and whole grains; utilizing alternative forms of travel; and purchasing second-hand goods.

This foundational work also illuminated opportunities for **improving and expanding future inventories**. We were not able to obtain data related to commercial propane use, for example. The City can continue to work with local propane vendors to start collecting these data and, eventually, begin incorporating this important emissions source into the city’s inventory. These and other improvements will not only paint a fuller picture of the community’s overall environmental impact but can also motivate businesses and individuals to better understand their personal carbon footprint and identify pathways for reducing that impact.

References

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Appendix: Tree Carbon Sequestration

While inventories focus on emissions of greenhouse gases *into* the atmosphere, vegetation such as trees and grasslands can sequester—or absorb—carbon dioxide *from* the atmosphere. Land use changes, such as development of open and working forest and agricultural lands, can affect this process. To illustrate and better understand this benefit, we sought to quantify the extent to which existing trees in Bainbridge Island sequester carbon from the atmosphere.

It is important to note that while vegetation on Bainbridge Island is taking carbon dioxide out of the atmosphere, this process does not offset or counteract emissions of greenhouse gases from the community, as quantified in the other sections of this report. Such land carbon “offsets” can only be achieved through rigorous and verifiable changes in land management that result in a net increase in carbon sequestration as compared to a pre-established baseline. This analysis does not quantify such activities, but rather offers some insight into the ecosystem services the trees and natural and working forests of Bainbridge Island provide, and the potential losses of services that could result from their development or removal.

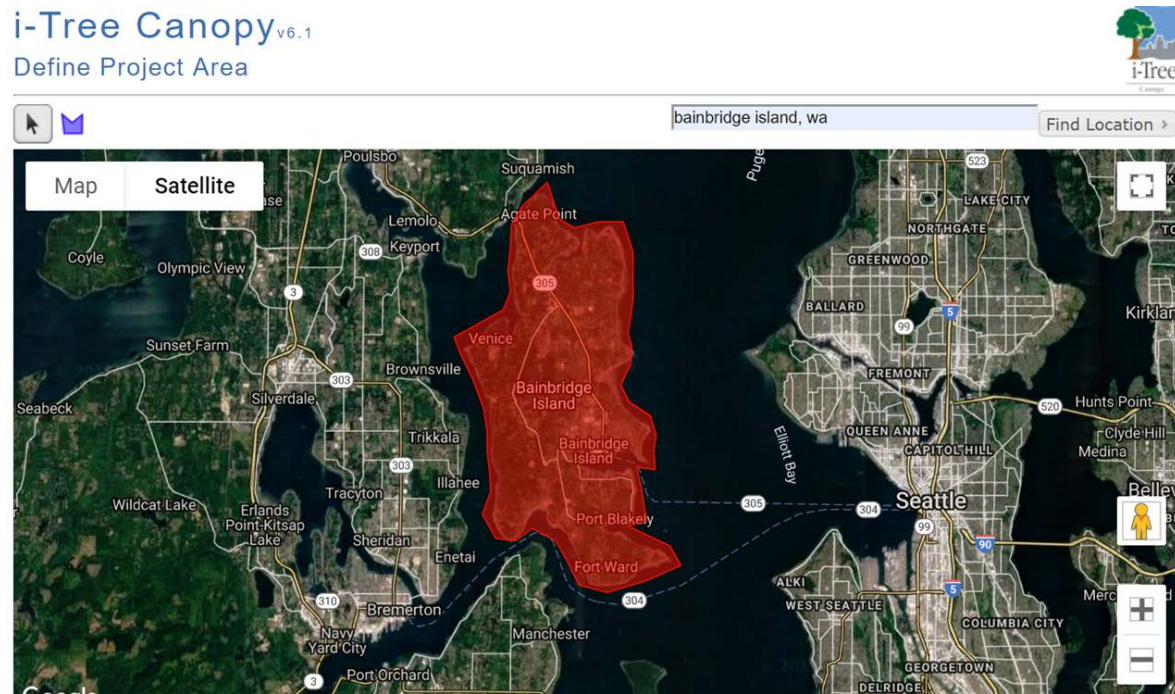
DATA SOURCES AND METHODOLOGY

We utilized the i-Tree Canopy software to estimate annual tree carbon sequestration on Bainbridge Island. The software facilitates a supervised random sampling using Google Maps aerial photography. Specifically, the software walks users through the following steps:¹⁹

- ▶ **Define the project area** using Google Maps aerial photography (see Figure 35).
- ▶ **Select project location** using dropdown menus. This step characterizes per-acre carbon sequestration based on anticipated vegetation types (e.g., types of trees) typical in that location. For Bainbridge Island, the selected location was Kitsap County (see Figure 36).
- ▶ **Conduct random sampling.** i-Tree Canopy shows a magnified image from the project area with a point identified with crosshairs (see Figure 37). The user then identifies whether the crosshairs are on a tree or “non-tree” area.
- ▶ **Repeat random sampling.** The tree/non-tree identification is repeated multiple times to increase statistical precision of the estimated percent tree canopy cover of the project area. For this exercise, we classified 100 random samples.
- ▶ **Analyze results.** i-Tree Canopy uses the random sampling to provide an estimate of overall percent tree canopy cover and resultant tree carbon benefits. The estimate carries a level of uncertainty (results are indicated by a mean value +/- one standard error). This uncertainty stems from limitations associated with the sampling approach.

¹⁹ More information regarding the methodology used by i-Tree Canopy can be found at https://canopy.itreetools.org/resources/iTree_Canopy_Methodology.pdf.

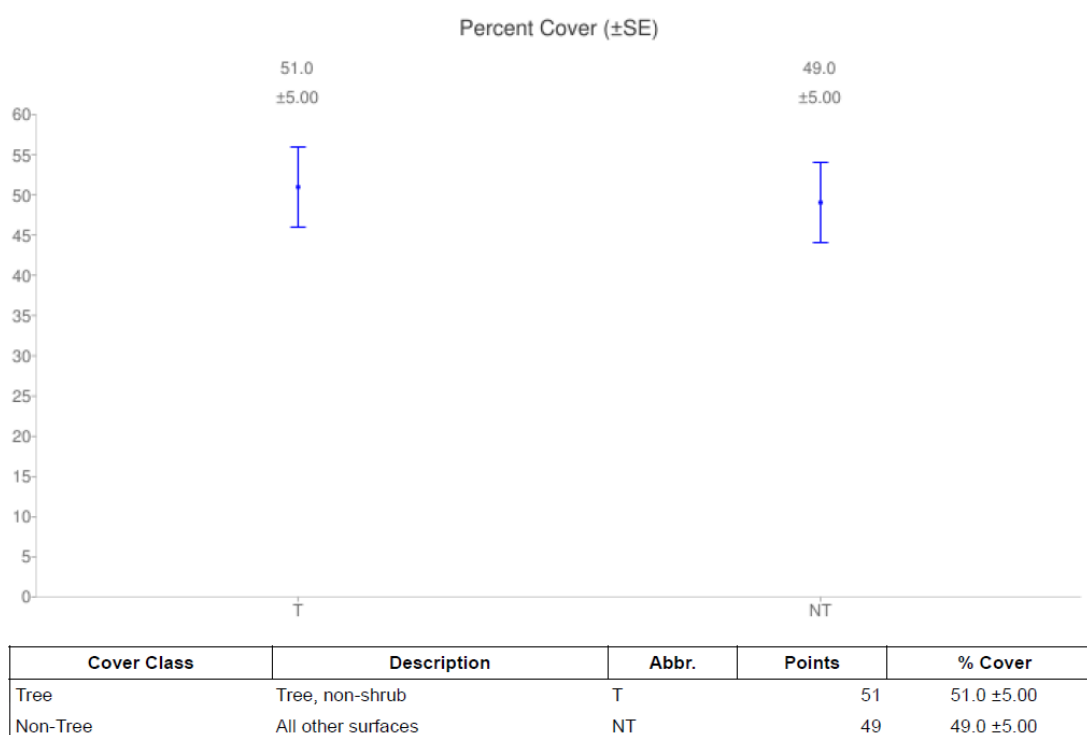
Figure 33. Defining the project area within i-Tree Canopy.



RESULTS

Outcomes from the i-Tree Canopy analysis suggest that 51% of the Bainbridge Island land mass was covered with trees in 2018.²⁰ Those trees sequester an estimated 58,727 MTCO₂e from the atmosphere every year.²¹ This value appears to have decreased slightly since 2014; sampling of historical aerial imagery suggests a tree canopy cover of 55% in 2014 (equivalent to an estimated 63,334 MTCO₂e annual sequestration rate).²² This change in tree canopy cover would result in an estimated net loss of 4,607 MTCO₂e in carbon sequestration benefits annually.

Figure 34. Estimated tree canopy cover on Bainbridge Island in 2018, using random sampling from the i-Tree Canopy software.²³



²⁰ Value depicted as mean estimate, with 95% confidence interval of 41.2% to 60.8%.

²¹ Assumes a sequestration rate of 10,010 lbs. CO₂/acre/year. Source: i-Tree Canopy v.6.1.

²² Value depicted as mean estimate, with 95% confidence interval of 45.3% to 64.7%.

²³ <https://canopy.itreetools.org/>

Figure 35. Selected project location for the Bainbridge Island study.

Select Project Locations

- ☐ Grant
- ☐ Grays Harbor
- ☐ Island
- ☐ Jefferson
- ☐ King
- ☒ Kitsap
- ☐ Kittitas
- ☐ Klickitat
- ☐ Lewis
- ☐ Lincoln
- ☐ Mason
- ☐ Okanogan
- ☐ Pacific

Selected Locations

- United States of America
 - Washington
 - Kitsap
 - All ○ Rural ○ Urban

Benefit Options

Which represent Tree Canopy?

- ☒ T - Tree
- ☐ NT - Non-Tree

Currency
Denomination
Symbol
Measurement
Units

The chosen cover c
will be used to estim
estimation, make su
at left repre

These current
[open](#)

Tree Benefits

	Abbreviation	Benefit Description	Removal Rate (lbs/acre/yr)
1	CO	Carbon Monoxide removed annually	0.788
2	NO2	Nitrogen Dioxide removed annually	6.659
3	O3	Ozone removed annually	28.491
4	PM10*	Particulate Matter greater than 2.5 microns and less than 10 microns removed annually	12.306
5	PM2.5	Particulate Matter less than 2.5 microns removed annually	2.942
6	SO2	Sulfur Dioxide removed annually	2.370
7	CO2seq	Carbon Dioxide sequestered annually in trees	10,010.267
8	CO2stor	Carbon Dioxide stored in trees (Note: this benefit is not an annual rate)	251,395.359

Figure 36. Example of random sampling classification exercise.

How It Works
Report
Export
Start Over
Exit
?

Map
Satellite

Remember, the more points you survey, the lower your Standard Error, and the more precise your sampling will be. More points surveyed provide for a better estimation of Land Cover across your study area.

i-Tree Canopy v6.1
Percent Cover (±SE)

0.00 ±0.00
0.00 ±0.00

Id	Cover Class	Latitude	Longitude
1	Tree	47.67300	-122.53149

Save Your Data

Save Data
Save Early. Save Often. Don't lose your project data!

Considerations

This carbon sequestration analysis represents a high-level estimate of annual land carbon sequestration on Bainbridge Island. Data limitations and other considerations include the following:

- ▶ **Omission of non-tree vegetation:** This approach assumes that non-tree vegetation does not sequester carbon, which is not the case. This analysis does not include carbon benefits from non-tree vegetation such as agriculture, pasture, and shrubs.
- ▶ **Tree generalization:** This approach does not explicitly differentiate between tree types, but assumes that all trees sequester an average, representative amount of carbon every year.
- ▶ **Statistical sampling:** This approach extrapolates a statistical sampling of an area, rather than analyze the area in its entirety, which inevitably results in some level of statistical uncertainty and imprecision.



CITY OF
BAINBRIDGE ISLAND

City Council Study Session Agenda Bill

MEETING DATE: December 3, 2019

ESTIMATED TIME: 15 Minutes

AGENDA ITEM: (7:20 PM) Identification of Benchmarks for Climate Action Plan - Executive, Climate Change Advisory Committee,

SUMMARY:

During the August 6 meeting, the Climate Change Advisory Committee discussed their work plan for development of a Climate Action Plan (CAP). As part of this discussion, questions about the appropriate benchmarks arose. This item provides time for Council to confirm what benchmarks they would like to use in the CAP, which the CCAC is currently drafting.

AGENDA CATEGORY: Presentation

PROPOSED BY: Executive

RECOMMENDED MOTION: Discussion

STRATEGIC PRIORITY: Green, Well-Planned Community

FISCAL IMPACT:

Amount:	
Ongoing Cost:	
One-Time Cost:	
Included in Current Budget?	

BACKGROUND: The Bainbridge Island 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 department of planning and community development staff on issues related to climate change as directed by the City Council. More specifically, the CCAC was tasked with assisting the city in implementing the climate related goals and policies of the comprehensive plan by undertaking several tasks as expeditiously as committee and city resources allow.

The CCAC most recently met with the City Council on August 6, 2019 at which time they presented a draft Climate Action Plan outline. The Council approved the outline and asked that the CCAC meet again with Council to establish benchmarks.

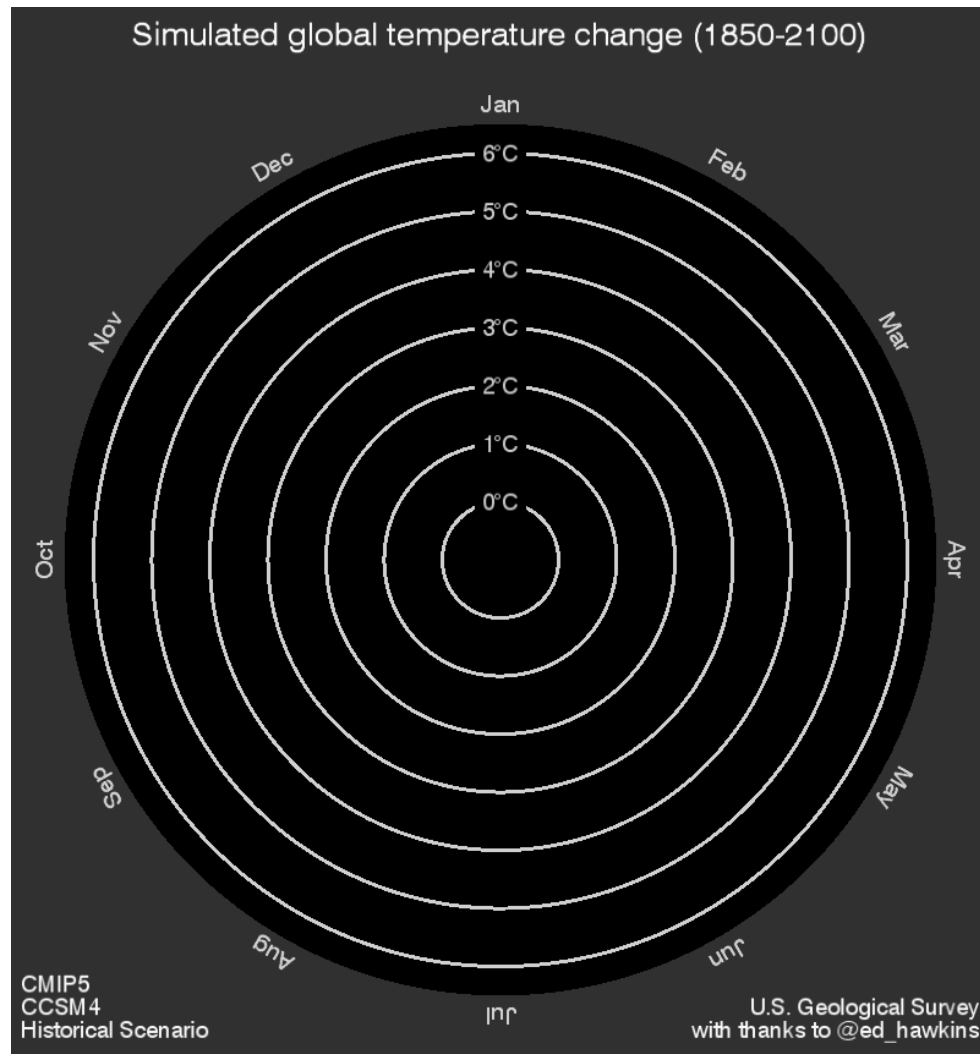
ATTACHMENTS:

FISCAL DETAILS: Not applicable.

Fund Name(s):

Coding:

Climate Action Plan
Climate Change Advisory Committee
December 3th 2019





Community Survey (Completed – ~500 respondents)



```
graph TD; A[Community Survey (Completed – ~500 respondents)] --> B[GHG Inventory (Completed)]; B --> C[Update BI Climate Assessment (Completed – sea level rise added)]; C --> D[Community Workshops (12/7 and 12/11)]; D --> E[Draft Plan to City Council (2/2020)];
```

The diagram is a vertical flowchart with five rectangular boxes, each containing a step in the process. The boxes are arranged in a descending staircase pattern from top-left to bottom-right. The first box is dark blue, and the subsequent four boxes are a lighter shade of blue. Each box is connected to the next by a downward-pointing arrow.

GHG Inventory (Completed)

Update BI Climate Assessment (Completed – sea level rise added)

Community Workshops (12/7 and 12/11)

Draft Plan to City Council (2/2020)

Community Workshops

12/7: City Hall and 12/11: BHS

- Provide information on:
 - Climate Impacts;
 - GHG Inventory; and
 - CAP Process.
- Receive input on actions:
 - To reduce GHG emissions and
 - Prepare residents, businesses, and city services.

Goals: Focus on Mitigation Tonight

Mitigation: By 2040 reduce GHG emissions by 90% compared to 2014 levels with interim targets of 25% reductions by 2023 and 60% by 2033.

Adaptation: Bainbridge Island shall become climate savvy and able to withstand the impacts of climate change.

Community Engagement: COBI encourages timely and measurable action by the City, community and partners including local and regional organizations to address climate change.

Ambitious but....

(Community Survey indicated over 80% respondents want action now)

WA State: 50% GHG reduction by 2050 compared to 1990 (Re-evaluating)

WA Cities:

- Bellingham: 85% GHG reduction by 2050 compared to 2000
- Tacoma: 80% GHG reduction by 2050 compared to 1990
- Kirkland/Olympia: 80% GHG reduction by 2050 compared to 2005
- Seattle: Carbon Neutral by 2050

Carbon Offsets are a Possibility

Why 90% GHG Reduction by 2040?

Aggressive actions needed to do our part to stay below 1.5 degrees Celsius.

- IPCC reports and National Climate Assessment

Provide leadership – raise the bar.

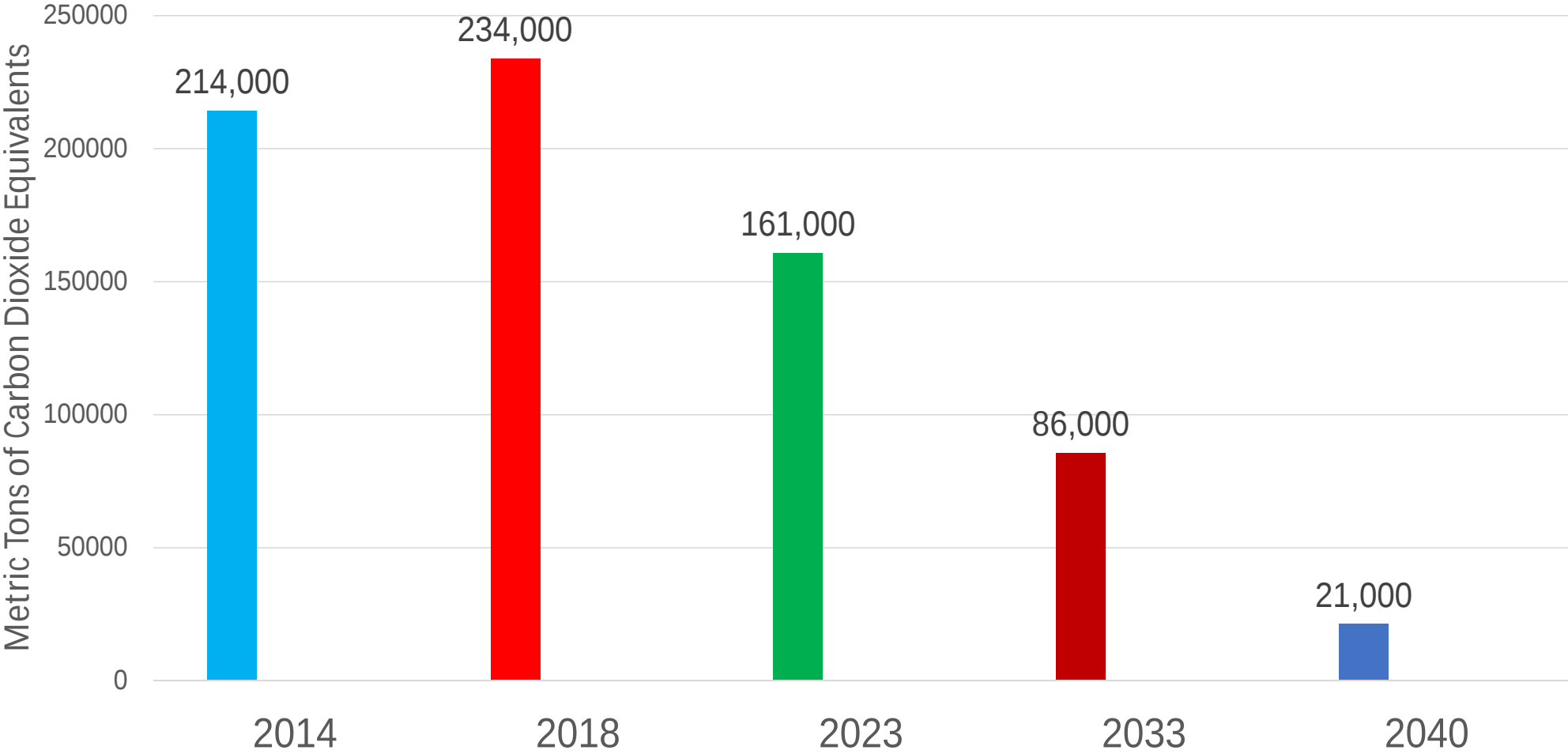
Can modify over time.

Not Recommending Use of Carbon Offsets

1. Makes our mitigation goal more transparent, simple, and “On Us”.
2. Offsets can be difficult to evaluate, verify, and they cost (~\$4-13/metric ton).

Questions?

Reductions Needed to Meet Goal



CAP: Six Focus Areas



1. Energy



2. Transportation



3. Buildings



4. Waste



5. Forests, Ag, Shorelines



6. Community Engagement & Citizen Action 12

Energy/Buildings: Path Forward

Electrical supply carbon free by 2045 (53% of current GHGs)

- WA Clean Energy Act requires carbon free by 2045.
- We can strive to meet by 2040.

BI Policies

- Robust Green Building Code
- Move away from using propane (2% of current GHGs)
- PSE Franchise Negotiations: Collaborate to speed up clean energy transition, increase energy conservation and develop local clean energy.

Transportation: Path Forward

Electric ferries (5% of current GHGs)

- All electric operation for BI by 2022 (WSF long-term plan)

Planes (13% of current GHGs)

- By 2050 GHG reductions of 50% compared to 2005 levels (CORSIA - Carbon Offsetting and Reduction Scheme for International Aviation)

BI Policies

- Sustainable Transportation Plan (12% of current GHGs from on-road vehicles)
- Link with land use planning.

Other Areas

Eliminate Refrigerant Loss – Hydrofluorocarbons (6% of current GHGs)

- WA State phasing out worst refrigerates.

BI Policies

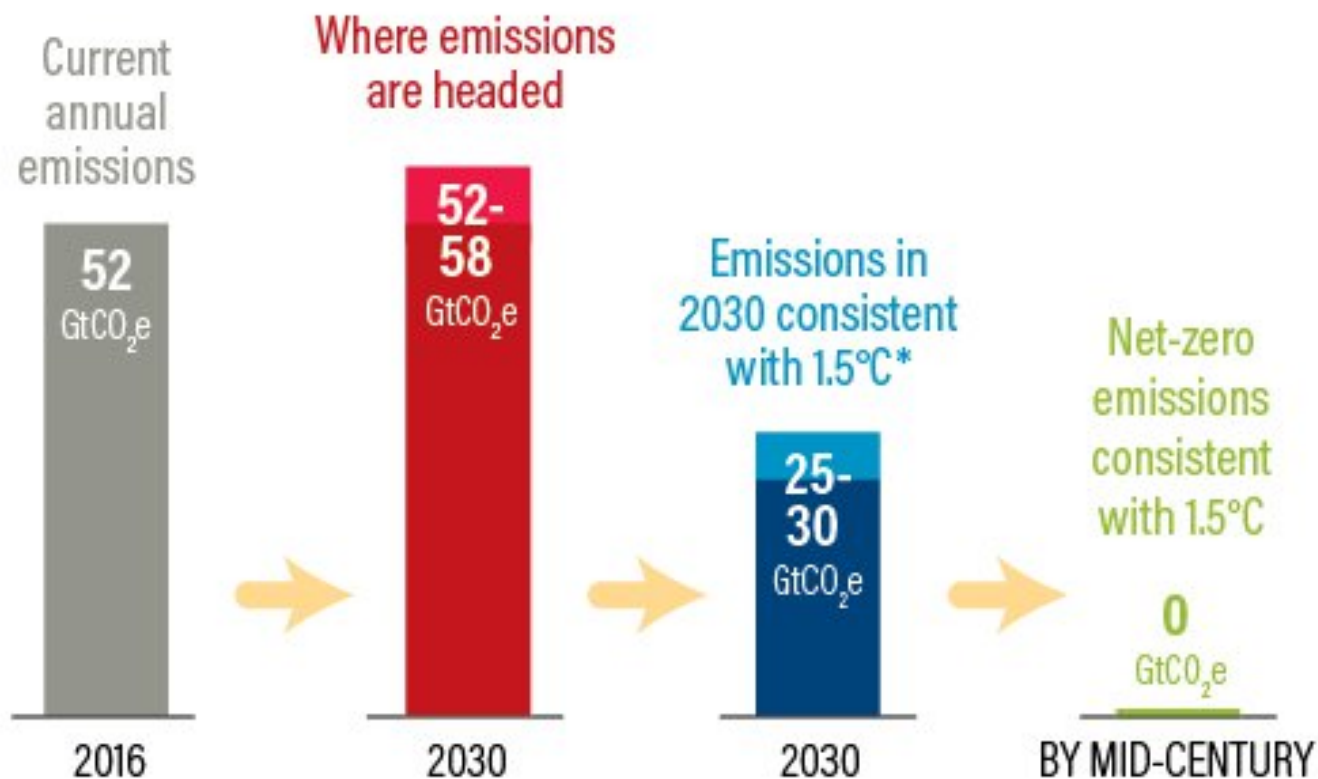
- Reduce solid waste generation (4% of current GHGs)
 - Plastic waste reduction ordinance; commercial composting; increased participation in waste reduction/diversion; and increase residential composting.

Monitor Progress and Adjust

Monitor Progress: Update Inventory

Adjust, if needed, Based on Results: Adaptive Management

The World Is Not on Track to Limit Temperature Rise to 1.5°C



Notes: *on average, no or low overshoot.

Bainbridge Island Climate Action Plan: Draft Goals and Focus Areas (November 24th, 2019)

We are proposing three goals and six focus areas for the Bainbridge Island Climate Action Plan (CAP).

Mitigation: By 2040 Bainbridge Island shall reduce its greenhouse gas emissions by 90% compared to 2014 levels with interim goals of reducing greenhouse gases by 25% by 2023 and 60% by 2033 compared to 2014 levels

Adaptation: Bainbridge Island shall become 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/Citizen Action: The City of Bainbridge Island encourages timely and measurable action by the community and partners including local and regional organizations to address climate change mitigation and adaptation in meaningful ways.

Six Focus Areas

- Energy;
- Transportation;
- Buildings;
- Waste;
- Forests, Agriculture, and Shorelines; and
- Community Engagement and Citizen Action

Each Focus Area will include:

- Goals (draft goals below)
- Targets;
- Strategies;
- Actions;
- Timelines; and
- Responsibilities

Draft focus area goals

Energy

- Increase energy conservation and efficiency across all energy sectors.
- Eliminate carbon-based energy sources from all energy sectors.
- Create energy self-sufficiency for emergency preparedness and increase energy infrastructure reliability/resilience.

Transportation

- Reduce motorized vehicle miles traveled, including by promoting walking and biking.
- Increase use of public transportation.
- Increase access to and use of electric mobility options (cars, bikes, and buses) and supporting development of electric ferries.

Buildings

- For all newly constructed and renovated residential, commercial, industrial and municipal buildings: reduce energy use, water consumption, greenhouse gas emissions, and increase reuse and recycling of materials during building construction and operation.
- For all existing residential commercial, industrial and municipal buildings work with homeowners and partners to: reduce energy use, water consumption, greenhouse gas emissions, and increase reuse and recycling of materials during renovations.
- Establish procedures to ensure buildings are resilient to climate change impacts (including higher precipitation, sea level rise, and temperatures).

Forests, Agriculture, and Shorelines

- Manage Bainbridge Island's natural resources to function as healthy, resilient ecosystems that can continue to provide multiple ecological functions including provision of habitat, maintaining the hydrologic cycle, storing carbon, and are resilient to the expected changes in hydrology, diseases and wildfire risk.
- Maintain the integrity of our Island's surface and groundwater resources in the face of climate change.
- Manage the City's shoreline to allow for resilience in the face of climate impacts including sea level rise and provide assistance to homeowners and businesses in preparing for and adapting to sea level rise.
- Support an agricultural system that prioritizes climate change resilient, local food production, ecosystem services including soil carbon storage and water management.,

Waste Reduction and Consumption

- Reduce Island waste generation.
- Increase diversion of waste from the landfill.
- Optimize collection and disposal systems to minimize GHG emissions.
- Ensure that any new waste-related infrastructure is not sited in current or future hazard areas.

Community Engagement/Citizen Action

- Increase the Bainbridge community's awareness and knowledge about current and future potential climate change related impacts and ways to reduce those impacts.
- Inspire action across the community and partner with local and regional organizations to take meaningful climate change mitigation and adaptation actions.
- Empower and prepare the City of Bainbridge, and Bainbridge Island residents, for climate impacts and emergencies.



CITY OF
BAINBRIDGE ISLAND

City Council Study Session Agenda Bill

MEETING DATE: December 3, 2019

ESTIMATED TIME: 15 Minutes

AGENDA ITEM: (7:35 PM) Traffic Calming Program Next Steps - Public Works,

SUMMARY: The Council will be presented with project recommendations for the 2019-20 traffic calming program.

AGENDA CATEGORY: Discussion

PROPOSED BY: Public Works

RECOMMENDED MOTION: Information only.

STRATEGIC PRIORITY: Reliable Infrastructure and Connected Mobility

FISCAL IMPACT:

Amount:	N/A
Ongoing Cost:	N/A
One-Time Cost:	N/A
Included in Current Budget?	Yes

BACKGROUND: At the June 4, 2019 City Council Study Session, the Council was briefed on a proposed framework for an annual traffic calming program (see Attachment A), with the assumption that the program would be funded annually with Transportation Benefit District (TBD) fees. Due to the passage of I-976, the City was only able to collect a limited portion of the TBD fees earmarked for traffic calming and climate mitigation (the latter a set-aside for Kitsap Transit's BI-Ride service) in 2019, the total of which, approximately \$66,000, will be available by the end of the year.

Given the limited funds available, and without a supplemental funding source identified to implement an annual traffic calming program, this agenda item outlines a proposal to use the current funding to implement a suite of stand-alone traffic calming projects in 2020.

ATTACHMENTS:

[Staff Memo Traffic Calming](#)

[Attachment A Traffic Calming Program.docx](#)

FISCAL DETAILS: Depending on the projects selected, up to \$66,000 of one-time costs could be directed towards traffic calming from the Transportation Benefit Fund. These projects would require a 2020 budget expenditure appropriation adjustment.

Fund Name(s): Other

Coding:



CITY OF
BAINBRIDGE ISLAND

Department of Public Works Memorandum

Date: November 27, 2019

To: City Council
Morgan Smith, City Manager

From: Christopher Wierzbicki, Public Works Director

Subject: 2019-20 Traffic Calming Program

Background

At the June 4, 2019 City Council Study Session, the Council was briefed on a proposed framework for an annual traffic calming program (see Attachment A), with the assumption that the program would be funded annually with Transportation Benefit District (TBD) fees. Due to the passage of I-976, the City was only able to collect a limited portion of the TBD fees earmarked for traffic calming and climate mitigation in 2019 (the latter a set-aside for Kitsap Transit's BI-Ride service – see attached Resolution 2019-06), the total of which, approximately \$66,000, will be available by the end of the year.

Given the limited funds available, and without a supplemental funding source identified to implement an annual traffic calming program, this memo outlines a proposal to use the current funding to implement a suite of stand-alone traffic calming projects in 2020. In order to maximize the use of funding for implementing projects, in lieu of funding further study, the proposed projects were selected based primarily upon their average daily traffic (ADT), proximity to parks and schools, percentage of non-local traffic, and community feedback.

Proposal



Radar Feedback Signs

Radar feedback signs are an effective traffic calming measure that make drivers aware of their speed, and result in between a 30-60% improvement in compliance with posted speed limits. The city presently has several of these signs installed, including the sign pictured at left on Madison near Sakai Village.

As part of this proposal, the staff is proposing the installation of four (4) new radar feedback signs at the following locations:

- Miller Road southbound approaching the 25-mph speed zone near Bainbridge Gardens;
- Fletcher Bay Road northbound approaching the 25-mph speed zone near Island Center Hall;
- Sportsman Club Road southbound approaching the Copper Top development;
- Valley Road eastbound approaching Rolling Bay.

The approximate cost of the signs is between \$12K-\$15K each, including installation and connection to an electrical power source (the solar powered signs may not be suitable for all of the proposed locations).

Street Murals



Street murals, which have been implemented around the country in both rural and urban areas, have been anecdotally proven to reduce vehicle speeds and improve pedestrian safety. The City of Seattle offers guidance on how their residents can effectively plan and implement a street mural in their [Client Assistance Memo 2506](#).

Staff is proposing that a portion of the traffic calming program funds – approximately \$10K – be dedicated to the planning and implementation of one or two volunteer-led, city-supported street murals. There are a number of factors that should be considered for the implementation of the murals, including identifying the parameters and boundaries for the installations (similar to the City of Seattle's approach), and identifying community partners that may be willing to act as the project leads.

Proposed Traffic Calming Program and Planning Process

What is Traffic Calming?

According to the Institute of Transportation Engineers (ITE) the definition of traffic calming is “the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behavior, and improve conditions for non-motorized street users.”

By design, traffic calming is a self-enforcing traffic management approach that forces motorists to alter their speed or direction of travel. The purpose of traffic calming is to improve safety, especially for pedestrians and bicyclists, and to improve the environment or “livability” of streets for residents and visitors. By decreasing volume and/or reducing speed, the number and severity of accidents can be greatly diminished.

Objectives of Traffic Calming

- Slow vehicular travel speeds
- Increase safety for non-motorized street users
- Increase access for all modes
- Enhance the street environment
- Reduce frequency and severity of collisions
- Reduce cut-through motor vehicle travel patterns
- Reduce the need for police enforcement

Traffic Calming Techniques

Traffic Calming techniques may include education, enforcement, or engineering to shift traffic patterns and/or reduce speeds. Most traffic calming measures focus on engineering changes to alter driver behavior. Traffic Calming techniques may include physical changes such as speed humps, roadway narrowing, traffic circles, pavement markings, signage and others. Education and enforcement efforts should be considered prior to engineering alternatives and as a complement to engineering efforts.

A formal traffic calming program or process is a common component of the transportation services in many jurisdictions.

Traffic Calming Program Steps

This following presents a sample approach that follows the principles behind common, successful traffic calming programs. A traffic calming program is usually based on a structured process, from initial determination of a problem or issue through implementation of an individual measure or series of measures. A formal policy or

process for the initiation of a traffic calming study may be desirable so that requests are addressed consistently.

Figure 1 presents a comprehensive process using common steps used by other jurisdictions. The process the City of Bainbridge Island chooses does not necessarily require an exhaustive series of steps or traffic studies. The process should seek to strike a balance between strict adherence to the wishes of a single group of residents and strict reliance on textbooks and technical literature.

Processes in other jurisdictions vary in their formal structure, but all effective traffic calming programs incorporate the following seven components which will be discussed in more detail below:

- Public participation
- Identification of problem or issue that is proposed for traffic calming
- Quantification of problem or issue to be resolved
- Development of traffic calming plan
- Approval of plan
- Implementation of plan
- Evaluation (and refinement) of traffic calming plan

TRAFFIC CALMING STUDY AND APPROVAL PROCESS

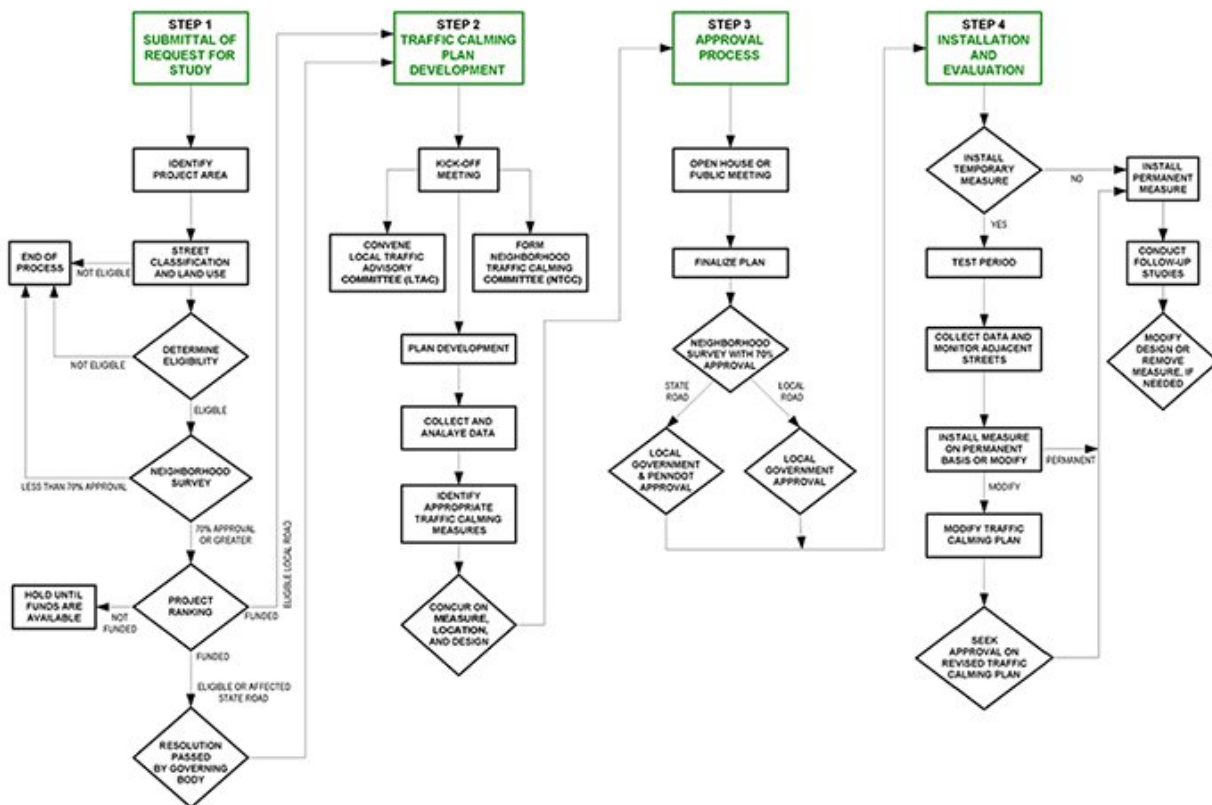


Figure 1 – Common Steps in a Comprehensive Traffic Calming Program

1 Public Participation

There is some level of public or citizen involvement at each step of the process. Near the outset of the problem identification step, the public involvement process needs to be defined and formalized.

The information garnered in a public participation process will include how the community perceives the problems or issues, how the community perceives the effects of potential solutions, and ultimately how the community perceives a recommended program of actions.

The public participation process provides an opportunity for staff to explain and demonstrate the traffic calming process, an evaluation of a problem or issue in measurable terms, the potential effects of traffic calming measures, and the likelihood of success for a program of actions.

2 Identification of Problem

A successful program or process should include a mechanism by which both residents and staff can identify a problem or issue for which traffic calming may provide a solution. It should have the flexibility to be both reactive (i.e., able to respond to citizens requests to address a problem) and proactive, perhaps as a result of an ongoing monitoring effort by staff.

A project request should be able to be initiated by staff, an elected official, or a community group. For a request from an individual, some level of support should be demonstrated by a formal mechanism (such as a petition) that reflects a specified number of residents, property owners, or businesses within the proposed affected area.

3 Quantification of Problem

An initial determination should be made of the area that could be potentially affected by implementation of a traffic calming measure. This becomes the overall study area or initial affected area. It is preferable for the affected area to not be too large because additional problems (especially non-traffic calming problems) may be brought into the discussion.

At the minimum, the affected area includes all streets for which traffic calming is proposed, all streets that are only accessible via these streets, and all streets that are likely to absorb significant levels of traffic diverted as part of traffic calming measures.

The affected area is typically larger for a volume control measure than for a speed control measure. The affected area can also be large for a speed control measure that is aggressive at reducing motorist speed.

The data to be compiled throughout the affected area may include some or all of the following:

- Roadway functional classification – such as local residential street, collector street with predominantly residential uses, and arterial road with commercial and other uses
- Speed – posted speed, average speed and 85th percentile speed in each direction
- Vehicle volume – daily and with directional splits for peak hours
- Graphical representation of all traffic control devices in affected area, including signs, markings, and signals
- Description of physical characteristics of roadways in affected area, including width, pavement condition, sidewalks, crosswalks, bicycle facilities, curb and gutter versus shoulder, vegetation
- Adjacent arterial streets – are mobility or safety problems on an arterial street contributing to the perceived local street problem or issue?
- Accident data – recent by type
- Parking – location and use
- Pedestrian activity – volume and origin-destination patterns
- Bicyclist activity – volume and origin-destination patterns
- Designated emergency response routes
- Transit routes and bus stops
- Locations of schools, parks, senior housing, medical services, and other unique trip generators

These data are used as "before" data to quantify the problem and to compare to "after" data to determine the effectiveness of the final traffic calming plan. The data can also be used as screening criteria. Many jurisdictions for example, set minimum thresholds to initiate traffic calming program steps such as 15% of existing traffic traveling 5 mph or more over the posted limits or have a minimum daily traffic volume (e.g., 1,000 vehicles per day; 100 vehicles during peak hour in one direction) before consideration is given to implementing traffic calming. As another example, some use a minimum of 40 percent for cut-through traffic in a single direction during one hour and a minimum cut-through volume of 100 vehicles in one hour.

4 Plan Development

The first step in the development of an overall traffic calming plan usually is to identify all measures that are appropriate for the setting and the problem to be addressed. They should be evaluated individually and as part of complimentary sets of measures.

Traffic operations on the nearby arterial street network should be investigated to determine whether the problem or issue could be addressed with changes to arterial street operations. For example, an arterial street motorist may choose to cut through a neighborhood because of a restricted movement at an arterial intersection. By accommodating that travel desire on the arterial network, the need for neighborhood traffic calming is reduced, if not eliminated.

The development of a traffic calming plan to effectively address an identified problem or issue can be conducted with a varying amount of public involvement. Regardless of the level of public involvement, it is critical to the success of a plan that (1) it reflects the needs and nuances of street users from the perspective of residents and (2) area residents feel ownership in the plan.

5 Approval

The plan approval process provides the affected neighborhood residents the opportunity to approve the details of the recommended traffic calming measures through neighborhood surveys or petitions.

Formal support and approval by residents (or businesses for a commercial area traffic calming plan) should be required – and is certainly desirable in order for the program of actions to be successful.

Many examples exist in other jurisdictions where, before any calming measures are installed, as many as 70 percent of affected property owners, tenant businesses, or residents must concur with the plan. Based on a review of common approval thresholds in the U.S., the ITE *Traffic Engineering Handbook* recommends that approval require a minimum of 50 percent of all surveys be returned with at least two-thirds of residents in favor.

The concerns and viewpoints of providers of several municipal services should be considered through either the formal public involvement process or by in-person meetings. These services should include the following:

- Fire District
- Police Department
- Public Works Department
- Kitsap Transit
- School District
- Bainbridge Disposal
- Post Office

6 Implementation

Implementation actions can include securing funding, preparing the engineering design, completing environmental reviews, and constructing or installing the traffic calming measures.

The final engineering design should cover the following:

- traffic calming measure features
- sidewalks – new or reconstructed
- crosswalks – new or remarked
- pavement markings – new or revised
- signage – new or repositioned
- lighting – new or repositioned
- storm drainage – new or reconstructed
- landscaping – new, enhanced, or reduced

Instead of a permanent installation, a trial installation could provide an opportunity to modify the configuration or location without incurring significant cost. A trial installation may also be warranted under certain circumstances:

- if traffic diversion is difficult to predict as part of a complex area-wide plan, or
- if the traffic calming measure is novel or new and unfamiliar to the area (note: national experience suggests that aesthetics is important to the acceptance and success of a traffic calming measure whether the installation is temporary or permanent)

The trial period should last at least three to six months. For a measure that has the potential to significantly alter traffic patterns, a longer time period could be appropriate – perhaps a six-to-twelve-month period.

A temporary measure should resemble a permanent measure as much as possible. The temporary measure should be complemented with the appropriate pavement markings, signs, and lighting that would accompany a permanent installation.

7 Evaluation

An evaluation should be conducted to determine whether the traffic calming implementation was a success in addressing the problem or issue that prompted the development and implementation of a traffic calming plan.

Speed and volume are likely to be the primary metrics used to assess the effects of the measure. But, other appropriate measures, in particular any collected as part of the "before" documentation, could be worthwhile.

The data will help the community learn from the project and acquire local data on the effects of the measure.

The evaluation could also lead to refinement of the plan – including the removal, relocation, or redesign of a measure.

WHAT DO TRAFFIC CALMING MEASURES LOOK LIKE?

Some speed management countermeasures are familiar to drivers and have been used for many years. Others are relatively new. All provide great safety and speed management benefits and may offer operations and cost-savings benefits as well.

Some examples include:

- **Speed Feedback Signs.** These portable, interactive signs display a vehicle's current speed to remind the driver to slow down and obey the posted speed limit. Research shows these types of signs have been effective at reducing speeds by 5 mph.
- **Enhanced Striping.** By improving striping or signing along horizontal curves, or narrowing lanes by edge striping, motorists are more aware of the road's width and are more likely to slow down to a speed. Depending on the type and combination of delineation countermeasures chosen, studies show speeds can be reduced by nearly 10 mph.
- **Speed Humps.** Generally located on residential streets or other low-speed roads, these raised pavement structures force motorists to slow down to a safe speed. Studies show speed humps can be effective at reducing speeds by nearly 10 mph.
- **Roundabouts.** This type of circular intersection is very effective at safely moving traffic through an intersection and can have significant traffic calming effects. Features such as channelized approaches, a center island, and circular design encourage lower speeds. Studies have shown roundabouts can lower speeds by as much as 15 to 20 mph and reduce severe crashes by nearly 80 percent.
- **Road Diets.** Narrowing lanes or reducing the number of lanes or Road Diets, when implemented in appropriate contexts, can lower the 85th percentile speeds and greatly reduce the number of motorists speeding excessively. Road Diets can include reducing vehicle lane width in order to install bike lanes or shoulders.

CHOOSING A TRAFFIC CALMING MEASURE

- **Roadway Setting (i.e., Urban vs. Rural)** Most countermeasures are versatile and can be applied in a variety of locations, but some countermeasures may be more appropriate in either a rural or urban setting. For example, an urban neighborhood may not welcome the idea of speed humps due to the additional noise, but they may be appropriate and effective on more rural roads.
- **Roadway Type.** Whether a roadway is an arterial, collector, or residential street influences the type of countermeasures to select. For instance, speed humps are

not appropriate for a higher speed roadway, but could be suited for streets with speed limits below 35 mph.

- **Speeding-related Accident History.** Transportation agencies often choose speed management countermeasures based on where, when, and what type of accidents are occurring. For example, curve delineation and rumble strips are effective countermeasures when a roadway is experiencing many speeding-related run-off-the-road crashes and improving the visibility of intersections or installing roundabouts may reduce speeding-related intersection crashes.
- **Road Users.** Practitioners also consider the users of the roadway and its surrounding area. For example, Road Diets are very effective at reducing speeds and allow designers to incorporate features such as bicycle lanes, pedestrian refuge islands, parking spaces, and wider sidewalks to accommodate the needs of all road users.
- **Cost.** Budget limitations can affect countermeasure selection. The City should allocate their resources to achieve the best safety benefits within available funding. A method should be developed to evaluate multiple alternatives to determine the solution that provides the best result for a specific location or for the system as a whole.
- **Effectiveness.** Some effort should be put into monitoring studies that examine the effectiveness of speed management countermeasures in order to select the best solutions.

Recommended Implementation Method

There are two methods recommended for implementing traffic calming projects:

- 1) City led implementation
- 2) Resident petition-led implementation.

1 City-Initiated Projects

The City will initiate and fund projects where conditions warrant an active intervention. The City's policy will implement traffic calming measures on streets if there are specific areas that present a significant safety hazard for bicyclists or pedestrians, or when traffic calming improvements can be implemented as part of a larger project.

As an example, the City has initiated a new project for pedestrian crossing improvements on High School Road and has received a grant to accomplish the project. Over the years the City has obtained grant funding from programs such as the Safe Routes to Schools program to install improvements such as speed reader signs.

2 Resident Petition Process

The City has supported a neighborhood-driven approach to residential speed control on streets. To be effective, speed control measures need to be supported by the residents

along a street. Recent examples of this past support are the speed humps installed as part of the Wardwell Road improvements.

Phased Approach

A common process that the City could consider using when petitioned by the residents of a street would be to use a phased process that also incorporates some threshold criteria to evaluate the requests received.

A phased approach would involve some data-gathering to determine whether the current situation exceeds the threshold for moving forward with traffic calming actions. If the threshold is met, then options can be considered to try and address the situation without immediately proceeding to more permanent construction-related solutions. Figure 2 shows the phasing options and applicable threshold criteria. There would need to be a period of reevaluation after Phase 1 solutions are implemented to determine effectiveness prior to consideration of moving to Phase 2.

	PHASE 1	PHASE 2
Threshold Requirement	15% of traffic traveling at or above 5 MPH over the posted limit OR 25% of peak hour traffic is non-local OR 2 or more speed-related accidents in the past year	15% of traffic traveling at or above 10 MPH over the posted limit OR 25% of peak hour traffic is non-local OR 3 or more speed-related accidents in past year AND At least 60% of affected properties are supportive of moving into Phase 2
Treatment Options	• Traffic Safety Campaign • Temporary speed reader sign • Targeted Police enforcement • Signage enhancements • Trimming vegetation • Enhanced Pavement Markings	• Permanent speed reader signs • Road diet • Speed Humps • Raised or enhanced crosswalks • Sidewalk or shoulder construction • Medians/chicanes/traffic circles • Local traffic only restrictions

Figure 2 - Traffic Calming Program Phasing Options

Prioritization of Requests

In anticipation of the implementation of a Traffic Calming program, the City has collected a number of active requests from citizens. Recognizing the limitations on City resources, a process for collecting, evaluating, and prioritizing the requests will be needed to efficiently manage the program.

It is proposed that an annual program approach be implemented, which would include:

- Receiving the requests and recording for annual program consideration
- Collecting data for threshold determinations of Phase 1 versus 2
- Prioritizing the requests in accordance with proposed scoring criteria in Figure 3
- Presenting a proposed annual project list for City Council approval
- Implementing the approved projects as a group, once per year

Based on the prioritized list of requests and resources available to implement them, the City would determine which projects would move forward for Phase 1 or 2 treatment options in the next yearly cycle.

CRITERIA	POINTS
<u>Average Daily Traffic (ADT)</u>	
500-100	1
1001-2000	2
2001- more	3
<u>Traffic Speed (85th Percentile)</u>	
5-7 mph above posted	2
8-10 mph above posted	4
More than 10 mph above posted	6
<u>Parks/Schools</u>	
Over ½ mile	1
Between ¼ and ½ mile	2
Within ¼ mile	3
<u>Accident History (Accidents/Year)</u>	
1	3
2	4
3	5
More than 3	7
<u>Street Conditions</u>	
Sidewalks or shoulders both sides	1
Sidewalks or shoulders one side	2
No sidewalks or shoulders	3
<u>Non-Local Traffic</u>	
25%-49%	1
50%-74%	2
More than 74%	3

Figure 3 - Traffic Calming Program Prioritization Scoring

RESOLUTION NO. 2019-06

A RESOLUTION of the City of Bainbridge Island, Washington, specifying how revenue from the increase of the vehicle license fee from \$20 to \$30, as allowed under RCW 36.73.065, will be used.

WHEREAS, on August 22, 2012, the City Council adopted Ordinance No. 2012-14, establishing the Bainbridge Island Transportation Benefit District; and

WHEREAS, RCW 36.73.065 authorizes a transportation benefit district to impose, by majority vote of the district's governing board, a fee of up to \$40.00 if a \$20.00 vehicle fee has been imposed for at least twenty-four months; and

WHEREAS, on January 9, 2013, the Bainbridge Island Transportation Benefit District adopted TBD Resolution No. 2013-01, establishing a \$20.00 vehicle license fee in accordance with RCW 36.73.065; and

WHEREAS, on December 1, 2015, the City Council adopted Ordinance No. 2015-31, assuming the rights, powers, functions, and obligations of the Bainbridge Island Transportation Benefit District in accordance with Chapter 36.74 RCW; and

WHEREAS, on January 22, 2019, the City Council adopted Resolution No. 2019-08, increasing the vehicle fee from \$20.00 to \$30.00; and

WHEREAS, all revenue from the City's vehicle fee ("Revenue") is deposited in the City's Transportation Benefit Fund; and

WHEREAS, also on January 22, 2019, the City Council adopted Resolution No. 2019-07, updating the City's Financial and Budget Policies to specify that, on an annual basis, two-thirds of the Revenue will be applied to eligible projects and programs under Chapters 36.73 and 36.74 RCW for preservation of the roads network, and one-third of the Revenue will be applied to eligible projects and programs under Chapters 36.73 and 36.74 RCW that are specific to traffic calming and climate change mitigation; and

WHEREAS, the City Council now desires to provide more specificity as to the traffic calming and climate change mitigation projects that one-third of the Revenue will be used for; and

WHEREAS, Policy TR 1.3 of the City's Comprehensive Plan is to "[e]ncourage and support the establishment of ride sharing and ride hailing services"; and

WHEREAS, Policy TR 8.2 of the City’s Comprehensive Plan is to “[s]upport the character of neighborhoods by providing neighborhood programs and projects for place making, traffic calming, greenways, appropriate street width, lighting for safety, curb cuts, and pedestrian and bicycle facilities as consistent with the Comprehensive Plan”; and

WHEREAS, Goal TR-12 of the City’s Comprehensive Plan is to “[d]evelop, operate, and maintain a transportation system that respects and protects the natural environment including the quality of the Island’s air, water and natural habitats”; and

WHEREAS, Policy TR 12.2 of the City’s Comprehensive Plan is to “[d]evelop transportation plans and programs that reduce travel demand, improve traffic flow and consider the impact to air quality including reducing greenhouse gas emissions. Support County, regional and state air quality goals and requirements.”

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF BAINBRIDGE ISLAND DOES RESOLVE AS FOLLOWS:

Section 1. In accordance with the City’s Financial and Budget Policies, this resolution describes traffic calming and climate change mitigation projects to be funded with one-third of the Revenue that will be collected between the date on which the Washington State Department of Licensing begins collection of the increased vehicle fee authorized under Resolution No. 2019-08 and January 22, 2023 (the “Time Period”).

Section 2. To reduce reliance on single-occupancy vehicles, relieve traffic congestion, and lower greenhouse gas output on Bainbridge Island, no more than \$100,000 of the one-third of the Revenue collected during the Time Period shall go toward working with Kitsap Transit to engage the community and communicate the benefits of the current BI Ride service. Efforts should go toward high-value and high-impact marketing outreach that shall include a metrics-based campaign designed to show an increase in awareness and use of the BI Ride service. Approved uses of the Revenue for this purpose include:

- A. Social media and traditional advertising and marketing efforts.
- B. Event awareness and subsidizing rides for targeted groups to include seniors and youth during specified times of the year.
- C. Collateral development for information campaigns with community groups.
- D. Stakeholder engagement and promotion with other taxing districts on Bainbridge Island.

Section 3. The City Council hereby establishes an annual neighborhood safety and traffic calming application process to fund small (less than \$50,000 per project) traffic calming and safety measures. The portion of the one-third of the Revenue collected during the Time Period not otherwise allocated by Section 2 of this resolution

shall be awarded by the City Council through this application process. The City Manager is directed to develop the application process, which must encompass the following:

- A. A web-based form for submitting proposed safety and traffic-calming projects.
- B. A process whereby City staff will work with the City Council to select and award projects in a manner that considers Island-wide geographic equity.
- C. Proposed projects must focus on measures that increase pedestrian and driver safety or provide an infrastructure-related benefit to the neighborhood in question.

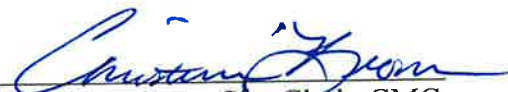
Section 4. This resolution shall take effect immediately after its passage and shall remain in full force and effect until all Revenue collected during the Time Period has been expended.

PASSED by the City Council this 22nd day of January, 2019.

APPROVED by the Mayor this 22nd day of January, 2019.

By: 
Kol Medina, Mayor

ATTEST/AUTHENTICATE:

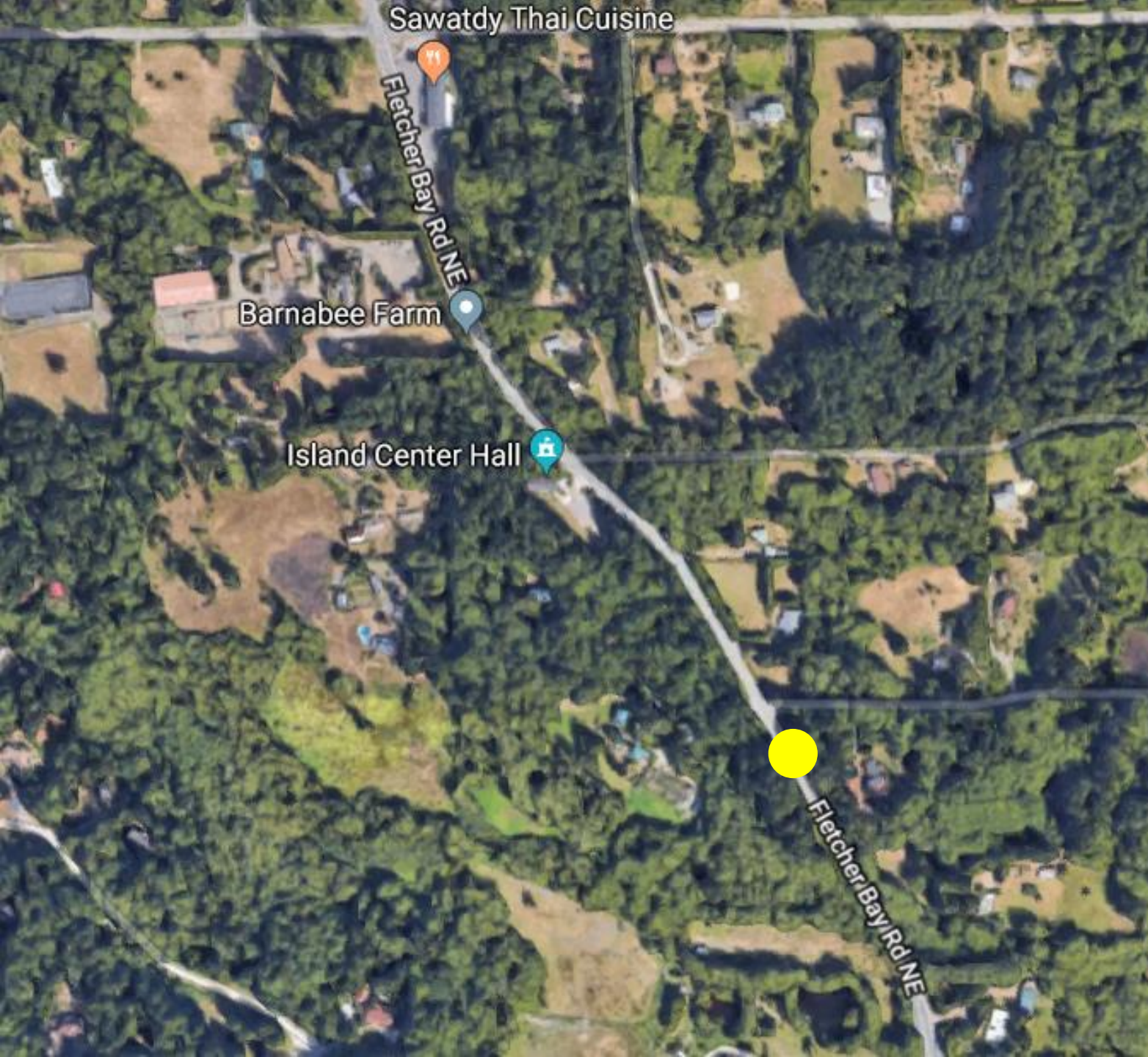
By: 
Christine Brown, City Clerk, CMC

FILED WITH THE CITY CLERK:
PASSED BY THE CITY COUNCIL:
RESOLUTION NO.

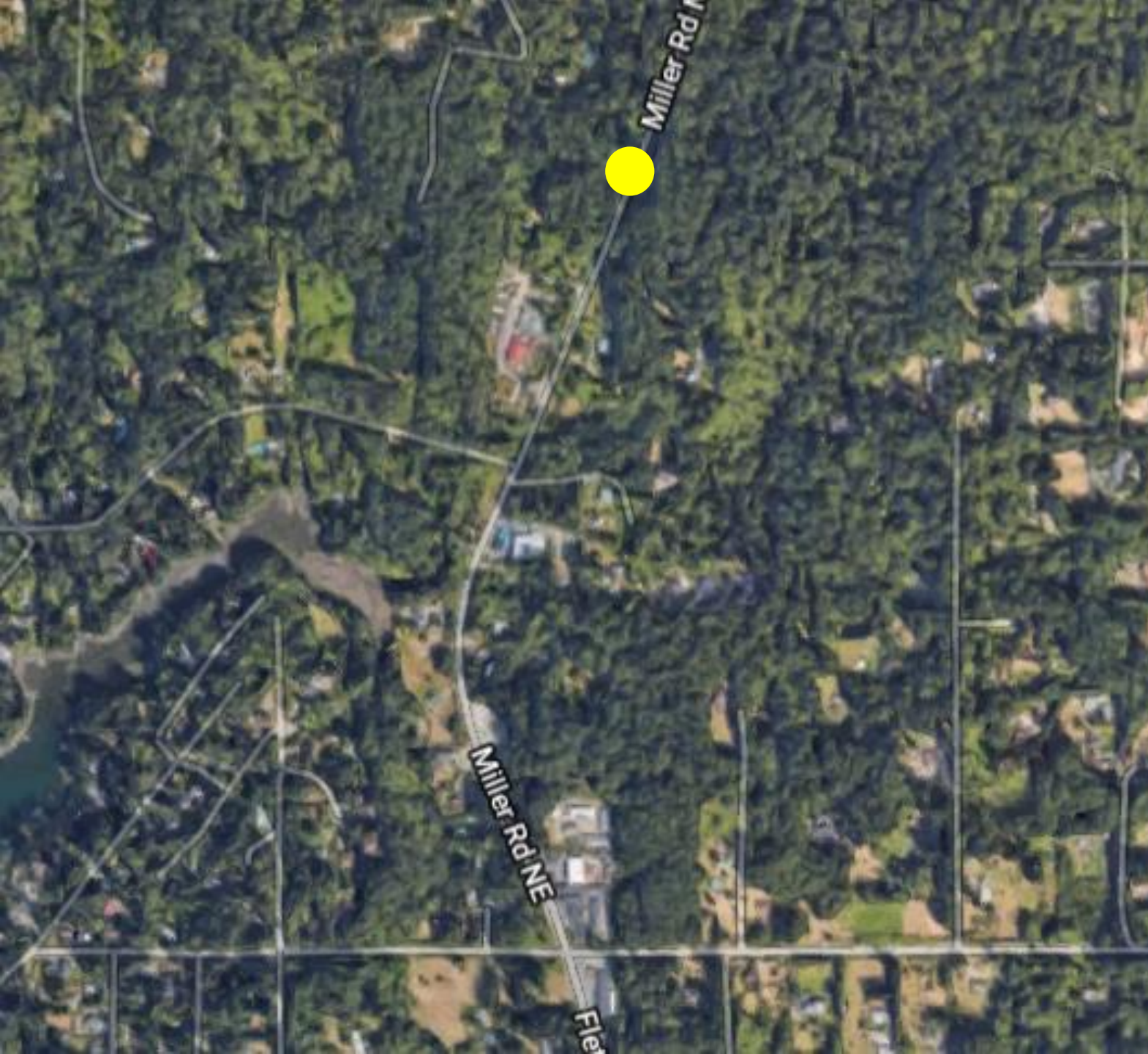
December 31, 2018
January 22, 2019
2019-06

2020 Traffic Calming Recommendations

- Authorized under resolution 2019-06
- \$66,000 anticipated to be collected by 12/31/19
- Recommendation of 4 radar feedback signs based on:
 - Average Daily Traffic
 - Proximity to parks/schools
 - Street conditions
 - Reinforcing recent speed limit changes
 - Community feedback



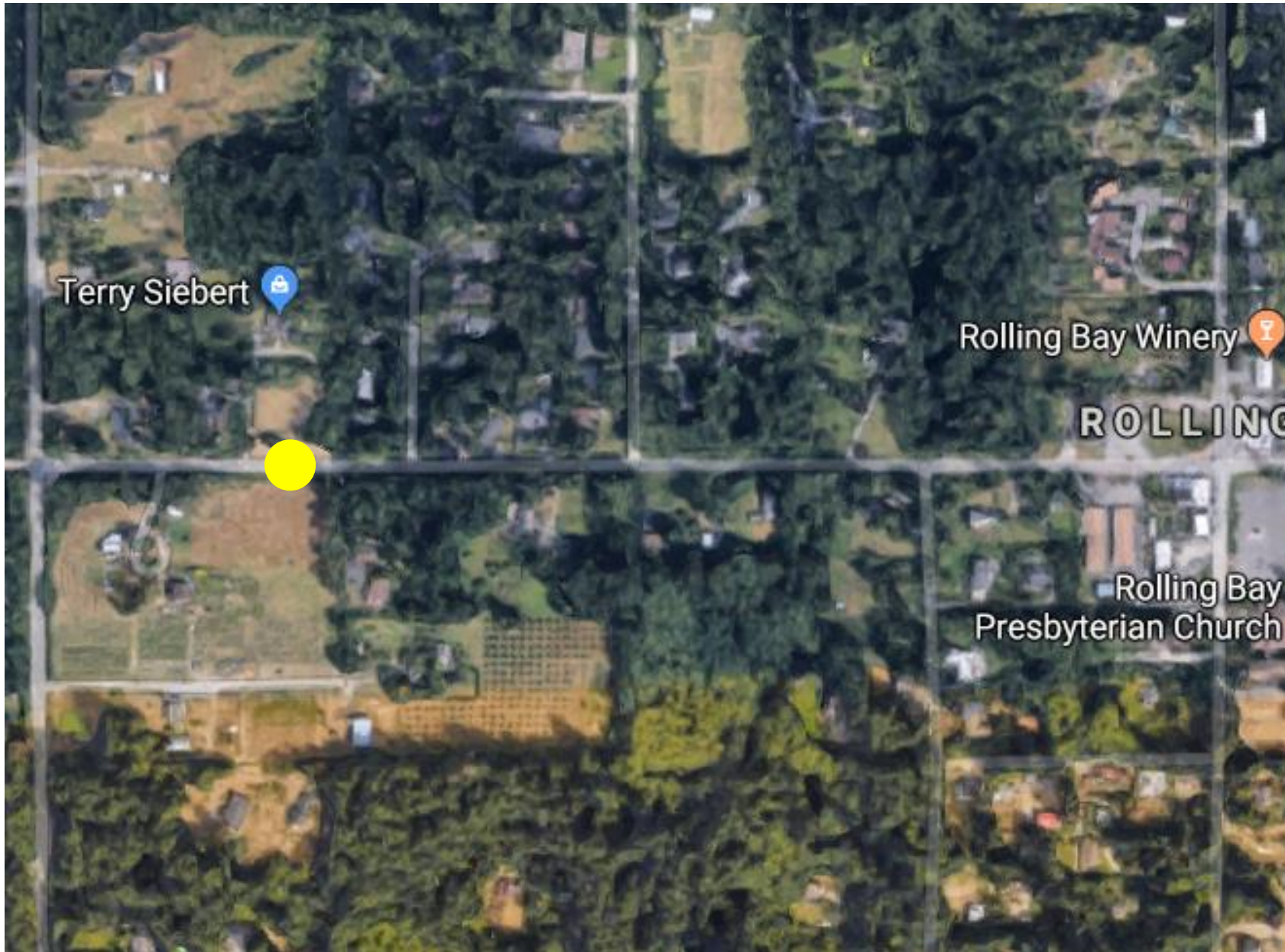
Fletcher Bay Road
Northbound at
Island Center



Miller Road
Southbound
at Island
Center



Sportsman
Club Road
Southbound
at Sakai



Valley Road
Eastbound at
Rolling Bay



Seattle
Department of
Transportation

Seattle Department of Transportation
700 Fifth Avenue, Suite 2300 | P.O. Box 34996
Seattle, Washington 98124-4996
(206) 684-5253 | publicspace@seattle.gov

CLIENT ASSISTANCE MEMO

2506

SEATTLE PERMITS - Part of a multi-departmental City of Seattle series on getting a permit

www.seattle.gov/transportation

PAINTING THE INTERSECTION IN YOUR NEIGHBORHOOD

WHAT IS A PAINTED INTERSECTION?

A painted intersection is a mural that is painted by a community group on the pavement at the intersection of residential streets. This photo shows an example of a painted intersection in Seattle.

WHAT'S THE PURPOSE OF A PAINTED INTERSECTION?

Painted intersections help create a community identity and are a great way to organize your neighbors around a common goal. They may also have indirect effects on helping to slow traffic in your neighborhood by making drivers aware that residents take pride in their neighborhood, encouraging them to be more respectful while driving down your street.



Street Painting Pilot Program



CITY OF
BAINBRIDGE ISLAND

City Council Study Session Agenda Bill

MEETING DATE: December 3, 2019

ESTIMATED TIME: 10 Minutes

AGENDA ITEM: (7:50 PM) Update on the Development Moratorium - Planning,

SUMMARY:

The Council approved Ordinance 2019-26 on September 24, 2019 that extended the moratorium as is for two additional months, and extends it further to April 3, 2020 in a more narrow form related to affordable housing and inclusionary zoning. See attached Work Program Status Report, Ordinance No. 2019-26, and moratorium summary.

AGENDA CATEGORY: Discussion

PROPOSED BY: Planning & Community Development

RECOMMENDED MOTION:

Information only.

STRATEGIC PRIORITY: Green, Well-Planned Community

FISCAL IMPACT:

Amount:	
Ongoing Cost:	
One-Time Cost:	
Included in Current Budget?	

BACKGROUND:

City staff have been working to address the issues identified in the development moratorium (Ordinance No. 2018-02, amended by Ordinances Nos. 2018-03, 2018-05, 2018-09, 2018-14, 2018-23, 2018-41, 2019-10 and 2019-26).

On September 24, the City Council approved new subdivision regulations (Ordinance 2019-03) and design guidelines (Ordinance 2019-25), and extended the development moratorium (Ordinance No. 2019-26) in order to address affordable housing.

See attached Work Program Status Report, Ordinance No. 2019-10, and summary.

ATTACHMENTS:

[Abbreviated Moratorium Work Program Status Report](#)

[Moratorium Extension Handout Final 100419](#)

[Ordinance No. 2019-26 Extending the Development Moratorium Approved 092419](#)

FISCAL DETAILS: N/A

Fund Name(s):

Coding:

Moratorium Topic	Status	Timeline
Critical Areas Ordinance (CAO)	Incomplete.	The City is awaiting a response from Dept. of Ecology (DOE) before returning to Council to amend the Shoreline Master Program. Staff anticipates a response from the DOE before the end of 2019. Following the response, Staff will begin the legislative process to update the SMP to integrate the CAO.
Status on November 20, 2019:	Complete: CAO update effective outside shoreline jurisdiction. Incomplete: Adoption of the new CAO within the SMP.	
Moratorium Topic	Status	Timeline
Subdivisions	Complete. Ordinance 2019-03 approved on September 24, 2019.	A public hearing with the City Council was held on August 27, 2019, with a second held on September 24, 2019. After closing the hearing, the City Council approved Ordinance 2019-03.
Status on November 20, 2019:	Complete: Ordinance 2018-20 approved by the City Council on December 11, 2018, related to revisions to land use review procedures for major projects, including subdivisions. New subdivision standards and design guidelines were approved on September 24, 2019 (Ordinance 2019-03).	
Moratorium Topic	Status	Timeline
Design Guidelines Update (related to Site Plan and Design Review and Conditional Use Permits).	Complete. Ordinance 2019-25 approved on September 24, 2019.	On September 24, the City Council held a public hearing on Ordinance 2019-25, adopting new design guidelines, <i>Design for Bainbridge</i> . After closing the public hearing, the City Council approved Ordinance 2019-25.
Status on November 20, 2019:	Complete: Consultant professional services agreement approved, kick-off meeting held with the DRB, design guideline open house held. Adopted new <i>Design for Bainbridge</i> design guidelines on September 24, 2019.	

Moratorium Topic	Status	Timeline
Review Process for Land Use Permits (related to Subdivisions, Site Plan and Design Review, and Conditional Use Permits).	Ordinance 2019-24 revising the Decision Criteria for SPRs and CUPs scheduled to come before the City Council on November 26 and December 10, 2019 for discussion and approval.	The Planning Commission held a public hearing on August 22 on Ordinance 2019-24. They made a recommendation to the City Council on October 10, 2019.
Status on November 20, 2019:	Complete: Ordinance 2018-20 approved by the City Council on December 11, 2018, related to new roles and responsibilities for the Planning Commission and Design Review Board, review procedures for subdivisions, site plan and design review, and conditional use permits, and revisions to the legislative review process for amending the BIMC. Incomplete: Revisions to Chapter 2.16 BIMC related to decision criteria for site plan and design review and conditional use permits. The amendments are scheduled to be discussed with the City Council on November 26 and December 10, 2019.	
Moratorium Topic	Status	Timeline
Affordable Housing	Incomplete.	The City Council had a presentation from ECONorthwest on September 17, 2019 to discuss inclusionary zoning regulations and a multifamily property tax exemption program. The Council asked for additional information, and another study session is scheduled for late January 2020.
Status on November 20, 2019:	Complete: City Council discussion and endorsement of <i>Priority</i> and <i>Quick Wins</i> recommendations from the AHTF Report and City Manager's approach for implementation. Incomplete: Implementation/approval of AHTF recommendations, including adoption of inclusionary zoning regulations. The City has secured additional consultant services to assist with this task. The Council asked for additional information, and another study session is scheduled for late January 2020.	

Moratorium Topic	Status	Timeline
Accessory Dwelling Units	Incomplete.	The City Council discussed common ownership of ADUs, RV's and tiny home communities at their September 10 and October 22, 2019 meetings, before forwarding on to the Planning Commission for the legislative review process. The Planning Commission is scheduled to begin discussing Ordinance 2019-09 on December 12, 2019. At their September 10th meeting, the City Council directed staff to develop a framework to regulate RVs as residences, and bring this topic back to Council at a future date. The Council will continue to discuss where and how to allow tiny home communities at a future date.
Status on November 20, 2019:	Complete: Began discussion on ADU condominiums. Incomplete: An ordinance that requires common ownership for new ADUs and allows tiny homes to serve as an ADU has yet to be approved. The Planning Commission will discuss these topics (Ordinance 2019-09) on December 12, 2019.	

October 2, 2019

DEVELOPMENT MORATORIUM SUMMARY: Effective beginning January 9, 2018 through December 3, 2019. A narrowed development moratorium will be in effect beginning December 4, 2019 until April 3, 2020 (Ordinance No. 2018-02, amended by Ordinance Nos. 2018-03, 2018-05, 2018-09, 2018-14, 2018-23, 2018-41, 2018-43, 2019-10 and 2019-26).

On September 24, 2019 the City Council approved Ordinance 2019-26, which extended the development moratorium **AS IS through December 3, 2019**. On December 4, the development moratorium will be narrowed, but in effect until April 3, 2020. The development moratorium before and after December 3, 2019 is described below.

Development Activity PROHIBITED During the Moratorium (through December 3)

- A. All applications for new short subdivisions (BIMC 2.16.070), except two-lot short subdivisions in which there is an existing single-family residence, new preliminary long subdivisions (BIMC 2.16.125), and new large lot subdivisions (BIMC 2.16.080).
- B. Major Site Plan and Design Review and Major Conditional Use Permit proposals that are not otherwise subject to this moratorium and that did not, before the effective date of the moratorium, have a pre-application conference on the Planning Department's calendar. Provided, that the moratorium does not apply to Major Site Plan and Design Review and Major Conditional Use Permit proposals for properties located in the Mixed-Use Town Center/Central Core Overlay District or the Business/Industrial District.

EXCEPTIONS to the Above Development Activities Prohibited During the Moratorium:

1. Permits and approvals for affordable housing projects that qualify as Housing Design Demonstration Project (HDDP) Tier 3 projects pursuant to BIMC 2.16.020.S. and Table 2.16.020.S-1, and
2. Permits and approvals for government facilities and structures; educational facilities and preschools; wireless communication facilities; and emergency medical and disaster relief facilities.

Development Activity PROHIBITED During the Narrowed Moratorium (December 4, 2019-April 3, 2020)

Subject to the exclusions below, the moratorium shall apply to Major Site Plan and Design Review and Major Conditional Use Permit proposals that are for development within the Winslow Master Plan Study Area (see map on next page) and did not, before the effective date of the moratorium, have a pre-application conference on the Planning Department's calendar.

EXCEPTIONS to the Above Development Activities Prohibited During the Narrowed Moratorium:

Exclusions.

1. The moratorium shall not apply in the Mixed-Use Town Center/Central Core Overlay District.
2. The moratorium shall not apply to development proposals that include 10% or more of total residential units designated as affordable housing. "Affordable housing" means affordable housing as governed by Chapters 18.21 and 18.12 of the Bainbridge Island Municipal Code ("BIMC"), as well as BIMC 18.36.030.
3. The moratorium shall not apply to subdivisions.
4. The moratorium shall not apply to permits and approvals for affordable housing projects that qualify as Housing Design Demonstration Project (HDDP) Tier 3 projects pursuant to BIMC 2.16.020.S. and Table 2.16.020.S-1.
5. The moratorium shall not apply to permits and approvals for government facilities and structures; educational facilities and preschools; wireless communication facilities; and emergency medical and disaster relief facilities.

**Winslow Master Plan
Study Area**
(Winslow Zoning Map)

ORDINANCE NO. 2019-26

AN ORDINANCE of the City of Bainbridge Island, Washington, adopted pursuant to RCW 35A.63.220 and RCW 36.70A.390; amending Ordinance No. 2019-10; providing for severability; leaving the effective date of the moratorium unchanged; and extending the moratorium in its current form for two months until December 3, 2019, and in a more narrow form from December 4, 2019, until April 3, 2020.

WHEREAS, on January 9, 2018, the City Council enacted Ordinance No. 2018-02 and thereby established a temporary emergency moratorium on the acceptance and processing of certain Permit Applications, as defined in Section 2 of Ordinance No. 2018-02; and

WHEREAS, the City Council and City staff received feedback and comment from individuals related to the moratorium and, based partly on that feedback and comment, the Council determined that certain exclusions to the moratorium needed to be amended to clarify the Council's intent regarding such exclusions; and

WHEREAS, on January 16, 2018, the Council enacted Ordinance No. 2018-03, which amended Ordinance No. 2018-02 to clarify some of the exclusions; and

WHEREAS, the Council and City staff received additional feedback and comment from individuals related to the moratorium and, based partly on that feedback, the Council determined that further amendment was necessary to clarify which types of activities are subject to the moratorium, and which activities are excluded from the moratorium; and

WHEREAS, on February 15, 2018, the Council enacted Ordinance No. 2018-05, which amended and restated Ordinance No. 2018-02 and Ordinance No. 2018-03; and

WHEREAS, based on additional information and consideration related to educational facilities and preschools, as well as related to the applicability of the moratorium in the Mixed Use Town Center/Central Core Overlay District, on March 13, 2018, the Council approved Ordinance No. 2018-09 to further clarify which types of activities are subject to the moratorium, and which activities are excluded from the moratorium; and

WHEREAS, this moratorium was imposed, in part, to allow the City Council and City staff adequate time to complete the Critical Areas Ordinance Update process, and to address the Council's concerns about the City's development review process, standards, and guidelines, as well as regarding affordable housing related issues; and

WHEREAS, the Council adopted the Critical Areas Ordinance Update (Ordinance No. 2018-01) on February 27, 2018, and the updated Critical Areas Ordinance took effect on April 23, 2018; and

WHEREAS, critical areas within the City's shoreline jurisdiction are regulated by the City's shoreline master program (see, e.g., Chapter 16.12 BIMC, RCW 36.70A.480(3)(b)); and

WHEREAS, integration of applicable critical areas regulations into the shoreline master program is essential to ensuring adequate protection of critical areas within the shoreline jurisdiction and no net loss of shoreline ecological functions; and

WHEREAS, regulations for critical areas within the City's shoreline jurisdiction are in the process of being updated through an amendment of the City's shoreline master program consistent with the Shoreline Management Act and that amendment process was ongoing as of July 9, 2018, which was the original date that the moratorium was set to expire, and that process continues to be ongoing; and

WHEREAS, the City Council approved Ordinance 2018-14 on April 24, 2018, amending the development moratorium in order to have the provisions of Section 3.B. only apply within the City's shoreline jurisdiction areas (Chapter 16.12 BIMC); and

WHEREAS, a number of moratorium priorities were identified at a joint meeting of the City's Design Review Board and Planning Commission on February 22, 2018, including the following:

- (1) Revise review procedures for preliminary subdivisions to include the Design Review Board and Planning Commission in process; and
- (2) Analyze alternatives to decision-making authority for the Design Review Board, Planning Commission, and Hearing Examiner for subdivisions, conditional use permits, and site plan and design review; and
- (3) Identify specific development standards to review/revise in Chapters 18.12 and 18.15 of the Bainbridge Island Municipal Code; and
- (4) Initiate rewrite of subdivision design standards in Chapter 17.12 of the Bainbridge Island Municipal Code; and

WHEREAS, at the April 3, 2018, City Council study session, the City's Department of Planning and Community Development provided a briefing on the Design Review Board and Planning Commission joint meeting wherein the Council authorized staff to proceed with a work plan addressing the priorities identified at the joint meeting; and

WHEREAS, on April 2 and 23, May 7 and 21, June 4 and 18, August 6, 13 and 20, September 4 and 17, and October 15, 2018, the City's Design Review Board discussed alternatives for revisions to the City's land use review procedures and/or subdivision design guidelines; and

WHEREAS, on March 22, May 10, June 7, 14, and 21, July 12 and 26, August 9, 23, and 30, September 13 and 27, October 25, November 8 and 29, and December 13, 2018, as well

as on January 10, and February 13 and 28, 2019, the City's Planning Commission discussed alternatives for revisions to the City's land use review procedures, subdivision design guidelines, and/or subdivision standards; and

WHEREAS, the City provided legal background on the roles of land use bodies, presented in a memorandum from attorney James E. Haney (outside legal counsel for the City) entitled, "*Roles of City Council, Planning Commission, Design Review Board, and Hearing Examiner in Land Use Permits*," dated June 1, 2018, and the City Council had a special workshop related to land use review procedures on August 27, 2018; and

WHEREAS, the City's Planning Commission completed their review of land use review procedures and forwarded their recommendations on those issues to the City Council, and on December 11, 2018, the Council enacted Ordinance No. 2018-20 related to revisions and updates to the City's land use review procedures; and

WHEREAS, as part of the Planning Commission's review and consideration of the City's subdivision review procedures, design guidelines, and standards, the Commission has reviewed the proposed ordinance related to such regulations, Ordinance No. 2019-03; and

WHEREAS, on February 13, 2019, and continuing to February 28, 2019, the Planning Commission conducted a public hearing on Ordinance No. 2019-03, and subsequently forwarded the proposed ordinance and their recommendations to the City Council; and

WHEREAS, each of the multiple Design Review Board and Planning Commission meetings as described above included an opportunity for public comment on the alternatives for revisions to the City's subdivision guidelines, standards, dimensional standards, and/or land use review procedures; and

WHEREAS, the City Council reviewed and considered proposed updates to the City's subdivision regulations at regularly scheduled meetings on September 4 and 11, October 9, and December 4, 2018, and January 22, 2019; and

WHEREAS, the City Council is in the process of considering the Planning Commission's recommendations related to proposed updates to the City's subdivision regulations as included in Ordinance No. 2019-03, including at the Council's meetings on March 19, April 2 and 16, May 28, and July 23, 2019; and

WHEREAS, the City Council held a public hearing on Ordinance 2019-03 on August 27, 2019, and September 24, 2019; and

WHEREAS, City staff is working with the Design Review Board and a consultant team related to updating the City's Design Guidelines (BIMC 18.18.030) more generally (i.e., the design guidelines that aren't included in the separate effort described above related to design guidelines for subdivisions), and that work was completed in August 2019; and

WHEREAS, on January 30 and May 22, 2019, the City hosted public meetings on the design review regulations update; and

WHEREAS, on March 4 and 18, April 1, May 6, June 17, and July 15, 2019, the City's Design Review Board discussed the design review regulations update; and

WHEREAS, at the February 5 and June 4, 2019, City Council study sessions, the City's consultant, Framework, provided briefings on the design review regulations update; and

WHEREAS, the Planning Commission held a public hearing on Ordinance No. 2019-25 (related to design review regulations) on September 5, 2019; and

WHEREAS, City staff provided the Planning Commission's September 5, 2019, recommendations related to the design review regulations update to the City Council for consideration at the Council's September 17, 2019, study session; and

WHEREAS, the City Council held a public hearing on Ordinance No. 2019-25 on September 24, 2019, and considered the input it received related to Ordinance No. 2019-25 prior to adopting the ordinance; and

WHEREAS, on June 12, 2018, the City Council authorized the execution of a professional services agreement to conduct an economic market analysis and feasibility study regarding a new inclusionary zoning program and updates to the City's Transfer of Development Rights program, both of which address affordable housing related issues; and

WHEREAS, on July 24, 2018, the Affordable Housing Task Force ("AHTF") presented its final report to the City Council and the Council discussed the recommendations more thoroughly on August 21, 2018; and

WHEREAS, on October 2 and December 4, 2018, the City Council received a project update on the economic market analysis from the consultant (ECONorthwest/Forterra) related to inclusionary zoning and possible updates to the City's Transfer of Development program; and

WHEREAS, on February 19, 2019, the City Council reviewed and provided direction to staff related to the ECONorthwest/Forterra final report and the AHTF report recommendations, and the Council discussed the status of the Council's Affordable Housing Ad Hoc Committee; and

WHEREAS, City staff members continue to work on prioritizing and organizing work on the inclusionary zoning and other AHTF report recommendations which were endorsed by the Council at its February 19, 2019, meeting and work is ongoing in this effort; and

WHEREAS, the City Council had a policy discussion on September 17, 2019, regarding inclusionary zoning or multifamily property tax exemption programs; and

WHEREAS, on February 27, 2018, the City Council was provided with a moratorium work program; and

WHEREAS, on April 10, May 22, June 5, June 19, July 17, August 21, September 4 and 18, October 2 and 16, November 6 and 20, and December 4, 2018, as well as on January 15, February 5 and 19, March 5 and 19, April 2 and 16, May 7 and 21, June 4 and 18, July 2 and 16, August 6 and 20, and September 3 and 17, 2019, the City Council was provided further moratorium work program status report updates; and

WHEREAS, on June 26, 2018, the City Council held a public hearing and approved Ordinance 2018-23, extending the development moratorium for another 90 days until October 9, 2018; and

WHEREAS, on September 25, 2018, the City Council held a public hearing and approved Ordinance 2018-41, and thereby extended the development moratorium for another six (6) months, and in so doing narrowed the moratorium to remove two-lot short subdivisions in which there is an existing single-family residence from the moratorium; and

WHEREAS, on October 16, 2018, the City Council discussed integrating critical area regulations into the Shoreline Master Program (Chapter 16.12 BIMC) and made the policy decision to not apply new Aquifer Recharge Protection Area regulations (BIMC 16.20.100) within the City's shoreline jurisdiction areas; and

WHEREAS, as a result of that policy decision, and the City Council's affirmation on October 23, 2018, that the moratorium should be narrowed in that manner, the Council directed staff to prepare an ordinance to entirely remove Section 3.B. (which, in effect, applied the Aquifer Recharge Protection Area regulations in the City's shoreline jurisdiction areas) from the moratorium; and

WHEREAS, on October 23, 2018, the City Council discussed additional revisions to the development moratorium, including related to excluding from the moratorium certain permit applications for development in the Business/Industrial zoning district, and the Council directed staff to prepare an ordinance to narrow the moratorium accordingly; and

WHEREAS, on October 23, 2018, the City Council also discussed potentially further narrowing provisions of the moratorium related to applications for new short subdivisions that the Council had previously narrowed, and the Council decided to not take such action at that time pending the Planning Commission's ongoing but not yet completed work related to subdivisions, including new subdivision design guidelines and revised subdivision standards and review procedures; and

WHEREAS, on October 23, 2018, the City Council also discussed issues related to making condominiums out of accessory dwelling units ("ADUs") and common ownership of ADUs, and the Council directed staff to work on possible revisions to the BIMC to allow the Council to further consider the common ownership issue related to ADUs; and

WHEREAS, the City Council discussed requiring common ownership for new ADUs at its meetings on June 18, July 23 and September 10, 2019, and directed staff to begin legislative review with the Planning Commission to adopt such regulations via draft Ordinance 2019-09; and

WHEREAS, on November 13, 2018, the City Council approved Ordinance 2018-43, and thereby narrowed the moratorium as requested by the Council and described above related to entirely removing Section 3.B. (which, in effect, applied the Aquifer Recharge Protection Area regulations in the City's shoreline jurisdiction areas) from the moratorium, and broadening an exclusion related to certain Major Site Plan and Design Review and Major Conditional Use Permit proposals to include in that exclusion such proposals for properties located in the Business/Industrial District; and

WHEREAS, although the City has been working to address the land use issues identified in the development moratorium, as described above, the updated subdivision standards and design guidelines would be adopted on September 24, 2019, at the earliest, and work is ongoing and not yet completed on affordable housing and the Site Plan and Design Review and Conditional Use Permit Decision Criteria; and

WHEREAS, on September 3 and 10, 2019, the City Council discussed the moratorium, including the option of extending it for two additional months (to December 3, 2019) to allow time for public outreach to educate the public about the new subdivision standards and design review regulations and to possibly extend a more narrow form of the moratorium beyond December 3, 2019, in order to adopt affordable housing requirements; and

WHEREAS, it is anticipated that an extended moratorium would be narrowed to apply only to certain types of development in the Winslow Master Plan Study Area, with some exceptions; and

WHEREAS, the City possesses land use jurisdiction and regulatory authority over the City's incorporated lands; and

WHEREAS, the moratorium promotes the public good and is necessary for the protection of public health, property, safety, and welfare, and the public emergency on which this moratorium was imposed continues to exist and this ordinance does not change the basis for that declaration of emergency, except as described above, nor the effective date of the moratorium, which is January 9, 2018.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF BAINBRIDGE ISLAND, WASHINGTON, DO ORDAIN AS FOLLOWS:

Section 1. Findings of Fact. The recitals set forth above are hereby adopted as additional and supplemental findings of fact to the City Council's initial findings of fact in support of the moratorium, as established by Ordinance Nos. 2018-02, 2018-03, 2018-05, 2018-09, 2018-14, 2018-23, 2018-41, 2018-43, and 2019-10.

Section 2. Public Hearing. Pursuant to RCW 35A.63.220 and RCW 36.70A.390, the City Council conducted a public hearing on this extension of the moratorium at its meeting on September 24, 2019, and took public testimony and considered further findings of fact.

Section 3. Moratorium Amended. The moratorium is hereby amended, as also stated in Section 7 and Section 8 below, to extend the moratorium in its current form for two months until December 3, 2019, and then in a more narrow form as described below until April 3, 2020.

Section 4. Moratorium Work Plan. As provided for under RCW 35A.63.220 and RCW 36.70A.390, the City may renew a moratorium for one or more six-month periods if a work plan has been developed, a public hearing has been held, and findings of fact have been made, and the City has thereby previously extended the moratorium as described herein based on the work plan that has been developed and the findings of fact that have been made in this ordinance and the previous ordinances related to this moratorium, and the City is hereby extending the moratorium for an additional six months based on an updated work plan (see attached Exhibit A), conducting another public hearing, and adopting additional findings of fact as stated in this ordinance.

Section 5. Severability. Should any section, paragraph, sentence, clause, or phrase of this ordinance, or its application to any person or circumstance, be declared unconstitutional or otherwise invalid for any reason, or should any portion of this ordinance be preempted by state or federal law or regulation, such decision or preemption shall not affect the validity of the remaining portions of this ordinance or its application to other persons or circumstances.

Section 6. No Change to Basis for Declaration of Emergency or Effective Date. This ordinance shall take effect and be in force five (5) days from and after its passage and publication as required by law. Provided, that this ordinance is not intended to change the basis of the emergency declarations stated in the moratorium ordinances which preceded this ordinance, Ordinance Nos. 2018-02, 2018-03, 2018-05, 2018-09, 2018-14, 2018-23, 2018-41, 2018-43, and 2019-10, except as described in the "Whereas" clauses of this ordinance. Pursuant to *Matson v. Clark County Board of Commissioners*, 79 Wn. App. 641 (1995), non-exhaustive underlying facts necessary to support the emergency declarations adopted as part of the enactment of this moratorium were included in the "Whereas" clauses of Ordinance No. 2018-02 and Ordinance No. 2018-03, and were restated and supplemented in Ordinance No. 2018-05 and Ordinance No. 2018-09, and Ordinance Nos. 2018-14, 2018-23, 2018-41, 2018-43, and 2019-10, and as well as in this ordinance, and those "Whereas" clauses are adopted as findings of fact.

Section 7. Change to Duration in Current Form to December 3, 2019. This ordinance amending the moratorium shall cause the moratorium to remain effective in its current form until December 3, 2019, and in a more limited form as described below in Section 8 until April 3, 2020, unless terminated earlier by the City Council. This ordinance does not change the effective date of the moratorium, which is January 9, 2018.

Section 8. Change to Duration in Narrowed Form from December 4, 2019, until April 3, 2020. This ordinance amending the moratorium shall also cause a more narrow form of the moratorium to be in effect from December 4, 2019, through April 3, 2020, as follows:

A. Subject to the exclusions below, the moratorium shall apply to Major Site Plan and Design Review and Major Conditional Use Permit proposals that did not, before the effective date of the moratorium, have a pre-application conference on the Planning Department's calendar, and which proposals are for development within the Winslow Master Plan Study Area. See, Exhibit B (attached).

B. Exclusions.

(1) The moratorium shall not apply in the Mixed Use Town Center/Central Core Overlay District.

(2) The moratorium shall not apply to development proposals that include 10% or more of total residential units designated as affordable housing. "Affordable housing" means affordable housing as governed by Chapters 18.21 and 18.12 of the Bainbridge Island Municipal Code ("BIMC"), as well as BIMC 18.36.030.

(3) The moratorium shall not apply to subdivisions.

(4) The moratorium shall not apply to permits and approvals for affordable housing projects that qualify as Housing Design Demonstration Project (HDDP) Tier 3 projects pursuant to BIMC 2.16.020.S. (formerly BIMC 2.16.020.Q.) and Table 2.16.020.S-1 (formerly Table 2.16.020.Q-1).

(5) The moratorium shall not apply to permits and approvals for government facilities and structures; educational facilities and preschools; wireless communication facilities; and emergency medical and disaster relief facilities.

The moratorium shall remain effective for the updated and extended period as established for the moratorium, which is currently scheduled to expire in its current form based on this ordinance on December 3, 2019, and in a more limited form as described above until April 3, 2020, unless terminated earlier by the City Council. This ordinance does not change the effective date of the moratorium, which is January 9, 2018. The Council may, at its sole discretion, renew the moratorium for one or more six (6) month periods in accordance with state law. This ordinance or a summary thereof consisting of the title shall be published in the official newspaper of the City.

PASSED by the City Council this 24th day of September, 2019.

APPROVED by the Mayor this 24th day of September, 2019.



Kol Medina, Mayor

ATTEST/AUTHENTICATE:


Christine Brown, CMC, City Clerk

FILED WITH THE CITY CLERK	September 20, 2019
PASSED BY THE CITY COUNCIL	September 24, 2019
PUBLISHED:	September 27, 2019
EFFECTIVE DATE:	October 2, 2019
ORDINANCE NO:	2019-26

Attached:

Exhibit A (Work Plan)

Exhibit B (Winslow Master Plan Study Area)

Exhibit A

Moratorium on Certain Development Work Plan Schedule Ordinance No. 2019-26 (December 2019 – June 2020)

Work Program Item	Description
Subdivision Standards	Revise the subdivision standards to result in residential development that reflects Comprehensive Plan goals and policies included in the land use, housing, and environmental elements. These updated standards are anticipated to be adopted at the September 24, 2019, City Council meeting (Ordinance 2019-03).
Design Guidelines	Update and improve the design guidelines and review process to result in higher quality development that reflects the Island's values and character. These updated design review regulations, <i>Design for Bainbridge</i> , are anticipated to be adopted at the September 24, 2019, City Council meeting (Ordinance 2019-25).
Conditional Use / Site Plan Decision Criteria	Revise criteria to reduce subjectivity in decision-making and better ensure outcomes consistent with the Comprehensive Plan. The Planning Commission will complete their review and recommendation on updated Decision Criteria and it is anticipated that the City Council could adopt these amendments in November 2019 (Ordinance 2019-24).
Affordable Housing	Develop an affordable housing work program in response to an Inclusionary Zoning Feasibility Analysis and Affordable Housing Task Force reports. Affordable housing tools being considered for adoption include Inclusionary Zoning and the Multifamily property tax exemption.

The map displays the Winslow Master Plan Study Area, which is outlined by a dashed line. The area is divided into numerous colored zones, each labeled with a zoning code. Key features include:

- Zoning Districts:** R-2, R-2.9, R-3, HS-2, HS-1, R-3.5, R-4.2, R-4.3, R-4.4, R-4.5, R-4.6, R-4.7, R-4.8, R-4.9, R-5, R-5.1, R-5.2, R-5.3, R-5.4, R-5.5, R-5.6, R-5.7, R-5.8, R-5.9, R-6, R-6.1, R-6.2, R-6.3, R-6.4, R-6.5, R-6.6, R-6.7, R-6.8, R-6.9, R-7, R-7.1, R-7.2, R-7.3, R-7.4, R-7.5, R-7.6, R-7.7, R-7.8, R-7.9, R-8, R-8.1, R-8.2, R-8.3, R-8.4, R-8.5, R-8.6, R-8.7, R-8.8, R-8.9, R-9, R-9.1, R-9.2, R-9.3, R-9.4, R-9.5, R-9.6, R-9.7, R-9.8, R-9.9, R-10, R-10.1, R-10.2, R-10.3, R-10.4, R-10.5, R-10.6, R-10.7, R-10.8, R-10.9, R-11, R-11.1, R-11.2, R-11.3, R-11.4, R-11.5, R-11.6, R-11.7, R-11.8, R-11.9, R-12, R-12.1, R-12.2, R-12.3, R-12.4, R-12.5, R-12.6, R-12.7, R-12.8, R-12.9, R-13, R-13.1, R-13.2, R-13.3, R-13.4, R-13.5, R-13.6, R-13.7, R-13.8, R-13.9, R-14, R-14.1, R-14.2, R-14.3, R-14.4, R-14.5, R-14.6, R-14.7, R-14.8, R-14.9, R-15, R-15.1, R-15.2, R-15.3, R-15.4, R-15.5, R-15.6, R-15.7, R-15.8, R-15.9, R-16, R-16.1, R-16.2, R-16.3, R-16.4, R-16.5, R-16.6, R-16.7, R-16.8, R-16.9, R-17, R-17.1, R-17.2, R-17.3, R-17.4, R-17.5, R-17.6, R-17.7, R-17.8, R-17.9, R-18, R-18.1, R-18.2, R-18.3, R-18.4, R-18.5, R-18.6, R-18.7, R-18.8, R-18.9, R-19, R-19.1, R-19.2, R-19.3, R-19.4, R-19.5, R-19.6, R-19.7, R-19.8, R-19.9, R-20, R-20.1, R-20.2, R-20.3, R-20.4, R-20.5, R-20.6, R-20.7, R-20.8, R-20.9, R-21, R-21.1, R-21.2, R-21.3, R-21.4, R-21.5, R-21.6, R-21.7, R-21.8, R-21.9, R-22, R-22.1, R-22.2, R-22.3, R-22.4, R-22.5, R-22.6, R-22.7, R-22.8, R-22.9, R-23, R-23.1, R-23.2, R-23.3, R-23.4, R-23.5, R-23.6, R-23.7, R-23.8, R-23.9, R-24, R-24.1, R-24.2, R-24.3, R-24.4, R-24.5, R-24.6, R-24.7, R-24.8, R-24.9, R-25, R-25.1, R-25.2, R-25.3, R-25.4, R-25.5, R-25.6, R-25.7, R-25.8, R-25.9, R-26, R-26.1, R-26.2, R-26.3, R-26.4, R-26.5, R-26.6, R-26.7, R-26.8, R-26.9, R-27, R-27.1, R-27.2, R-27.3, R-27.4, R-27.5, R-27.6, R-27.7, R-27.8, R-27.9, R-28, R-28.1, R-28.2, R-28.3, R-28.4, R-28.5, R-28.6, R-28.7, R-28.8, R-28.9, R-29, R-29.1, R-29.2, R-29.3, R-29.4, R-29.5, R-29.6, R-29.7, R-29.8, R-29.9, R-30, R-30.1, R-30.2, R-30.3, R-30.4, R-30.5, R-30.6, R-30.7, R-30.8, R-30.9, R-31, R-31.1, R-31.2, R-31.3, R-31.4, R-31.5, R-31.6, R-31.7, R-31.8, R-31.9, R-32, R-32.1, R-32.2, R-32.3, R-32.4, R-32.5, R-32.6, R-32.7, R-32.8, R-32.9, R-33, R-33.1, R-33.2, R-33.3, R-33.4, R-33.5, R-33.6, R-33.7, R-33.8, R-33.9, R-34, R-34.1, R-34.2, R-34.3, R-34.4, R-34.5, R-34.6, R-34.7, R-34.8, R-34.9, R-35, R-35.1, R-35.2, R-35.3, R-35.4, R-35.5, R-35.6, R-35.7, R-35.8, R-35.9, R-36, R-36.1, R-36.2, R-36.3, R-36.4, R-36.5, R-36.6, R-36.7, R-36.8, R-36.9, R-37, R-37.1, R-37.2, R-37.3, R-37.4, R-37.5, R-37.6, R-37.7, R-37.8, R-37.9, R-38, R-38.1, R-38.2, R-38.3, R-38.4, R-38.5, R-38.6, R-38.7, R-38.8, R-38.9, R-39, R-39.1, R-39.2, R-39.3, R-39.4, R-39.5, R-39.6, R-39.7, R-39.8, R-39.9, R-40, R-40.1, R-40.2, R-40.3, R-40.4, R-40.5, R-40.6, R-40.7, R-40.8, R-40.9, R-41, R-41.1, R-41.2, R-41.3, R-41.4, R-41.5, R-41.6, R-41.7, R-41.8, R-41.9, R-42, R-42.1, R-42.2, R-42.3, R-42.4, R-42.5, R-42.6, R-42.7, R-42.8, R-42.9, R-43, R-43.1, R-43.2, R-43.3, R-43.4, R-43.5, R-43.6, R-43.7, R-43.8, R-43.9, R-44, R-44.1, R-44.2, R-44.3, R-44.4, R-44.5, R-44.6, R-44.7, R-44.8, R-44.9, R-45, R-45.1, R-45.2, R-45.3, R-45.4, R-45.5, R-45.6, R-45.7, R-45.8, R-45.9, R-46, R-46.1, R-46.2, R-46.3, R-46.4, R-46.5, R-46.6, R-46.7, R-46.8, R-46.9, R-47, R-47.1, R-47.2, R-47.3, R-47.4, R-47.5, R-47.6, R-47.7, R-47.8, R-47.9, R-48, R-48.1, R-48.2, R-48.3, R-48.4, R-48.5, R-48.6, R-48.7, R-48.8, R-48.9, R-49, R-49.1, R-49.2, R-49.3, R-49.4, R-49.5, R-49.6, R-49.7, R-49.8, R-49.9, R-50, R-50.1, R-50.2, R-50.3, R-50.4, R-50.5, R-50.6, R-50.7, R-50.8, R-50.9, R-51, R-51.1, R-51.2, R-51.3, R-51.4, R-51.5, R-51.6, R-51.7, R-51.8, R-51.9, R-52, R-52.1, R-52.2, R-52.3, R-52.4, R-52.5, R-52.6, R-52.7, R-52.8, R-52.9, R-53, R-53.1, R-53.2, R-53.3, R-53.4, R-53.5, R-53.6, R-53.7, R-53.8, R-53.9, R-54, R-54.1, R-54.2, R-54.3, R-54.4, R-54.5, R-54.6, R-54.7, R-54.8, R-54.9, R-55, R-55.1, R-55.2, R-55.3, R-55.4, R-55.5, R-55.6, R-55.7, R-55.8, R-55.9, R-56, R-56.1, R-56.2, R-56.3, R-56.4, R-56.5, R-56.6, R-56.7, R-56.8, R-56.9, R-57, R-57.1, R-57.2, R-57.3, R-57.4, R-57.5, R-57.6, R-57.7, R-57.8, R-57.9, R-58, R-58.1, R-58.2, R-58.3, R-58.4, R-58.5, R-58.6, R-58.7, R-58.8, R-58.9, R-59, R-59.1, R-59.2, R-59.3, R-59.4, R-59.5, R-59.6, R-59.7, R-59.8, R-59.9, R-60, R-60.1, R-60.2, R-60.3, R-60.4, R-60.5, R-60.6, R-60.7, R-60.8, R-60.9, R-61, R-61.1, R-61.2, R-61.3, R-61.4, R-61.5, R-61.6, R-61.7, R-61.8, R-61.9, R-62, R-62.1, R-62.2, R-62.3, R-62.4, R-62.5, R-62.6, R-62.7, R-62.8, R-62.9, R-63, R-63.1, R-63.2, R-63.3, R-63.4, R-63.5, R-6



CITY OF
BAINBRIDGE ISLAND

City Council Study Session Agenda Bill

MEETING DATE: December 3, 2019

ESTIMATED TIME: 10 Minutes

AGENDA ITEM: (8:00 PM) Town Square Cover Discussion - Public Works,

SUMMARY: The Council will be presented with an alternative to consider for implementation of the Town Square rain/shade cover, which is currently identified in the CIP as a 2019 facility project with \$65,000 budgeted.

AGENDA CATEGORY: Discussion

PROPOSED BY: Public Works

RECOMMENDED MOTION: Information Only.

STRATEGIC PRIORITY: Healthy and Attractive Community

FISCAL IMPACT:

Amount:	N/A
Ongoing Cost:	N/A
One-Time Cost:	N/A
Included in Current Budget?	No

BACKGROUND: During the 2019-2020 Biennium Budget Process, Council included adding \$65,000 for a Town Square cover. City staff investigated options to cover a portion of the Town Square between City Hall and the Bainbridge Performing Arts building, which is used for the seasonal Farmers Market.

ATTACHMENTS:

[Staff Memo Town Square Cover](#)

[Town Square Cover Presentation](#)

FISCAL DETAILS: The project is currently identified in the CIP as a 2019 facility project with \$65,000 budgeted. The recommended alternative would require a 2020 budget adjustment to increase project funding by \$89,000.

Fund Name(s):

Coding:



Public Works Department
Memorandum

Date: November 27, 2019
To: City Council
Morgan Smith, City Manager
Chris Wierzbicki, Public Works Director
From: Mark Epstein, Engineering Project Manager
Subject: Town Square Cover Alternatives

During the 2019-2020 Biennium Budget Process, Council added \$65,000 for a Town Square cover. City staff investigated options to cover a portion of the Town Square between City Hall and the Bainbridge Performing Arts building, which is used for the seasonal Farmers Market.

Background

The existing structure was installed as part of the City Hall construction. It consists of metal tubing supported on ten freestanding concrete fin walls. Horizontal beams support light fixtures, and vertical columns have tabs welded near the top to affix a banner. The structure is approximately 22' wide x 80' long, located over the paved portion in the center of the plaza (see Figures 1 and 2).



Figure 1 – Town Square Structure Location



Figure 2 – Town Square Structure

Based on available information, staff determined that the existing metal framework is not structurally adequate to support a cover. The structure was designed to hold banners, sized approximately 2'x3' each. Other complicating factors are underground utilities beneath the plaza that could constrain the ability to construct new footings in locations other than the existing fin walls.

I met with Tom Kelly and Morgan Houk, managers of the Bainbridge Farmers Market, to identify their goals for a cover. Their main objective is to provide rain protection over a portion of the Farmers Market to make it more comfortable for visitors in the rainy season. A cover over just the central paved portion of the Town Square plaza was acceptable to them because the vendors are already under tents.

Alternatives

Research into covers included fabric tent structures, glass canopies, metal canopies, and retractable shades (see Figures 2-5). The shape and materials for a cover are limited only by imagination and budget.



Figure 2 – Tent Canopy



Figure 3 – Glass Canopy



Figure 4 – Metal Canopy



Figure 5 – Retractable Shade

Another consideration is the renovation of the Bainbridge Performing Arts (BPA) building (Figure 6), which is currently in design. The proposed design changes include reconfiguring the front door, expanded foyer, and cupola to be in line with the plaza centerline, however we do not have the finished conceptual design as of this memo date.



Figure 6 – Existing BPA Building

Recommendation

The least cost and lowest risk option is one that reuses the existing fin walls, or has pole supports located in the same footprint. The lowest maintenance option would be a metal cover, or a waterproof fabric cover that could be removed and washed. The least cost option is one that is manufactured, not custom. One alternative that best meets the above criteria is a manufactured, motor-operated retractable shade structure, supported by metal or wood poles that could be installed by a local contractor (see Figure 7).



Figure 7 – Retractable Shade Structure by ShadeFX

Preliminary Cost Estimate

There are several manufacturers of shade structures but few of them provide rain protection. One company that does offer rain canopies that match the existing structure dimensions is manufactured by ShadeFX. The preliminary quote given by that company is \$50/square foot (sf), which would include gutters to collect rain from the canopies. The area to be covered is 18'x80', or 1,440 sf. At \$50/sf, the cost for the canopy alone is \$72,000. A preliminary estimate of total costs includes the following:

Estimate of Costs

Demolition and Site Work	\$ 22,000
Structural Supports	\$ 28,000
Canopy System	\$ 72,000
<u>Electrical Upgrades</u>	<u>\$ 20,000</u>
Sub-Total	\$142,000
<u>Planning Contingency (20%)</u>	<u>\$ 28,000</u>
Total	\$170,000

Current Budget Available

Capital Funds	\$65,000
<u>Operating Funds</u>	<u>\$16,000</u>
Total	\$81,000

Funding Shortfall \$89,000

End of Memo

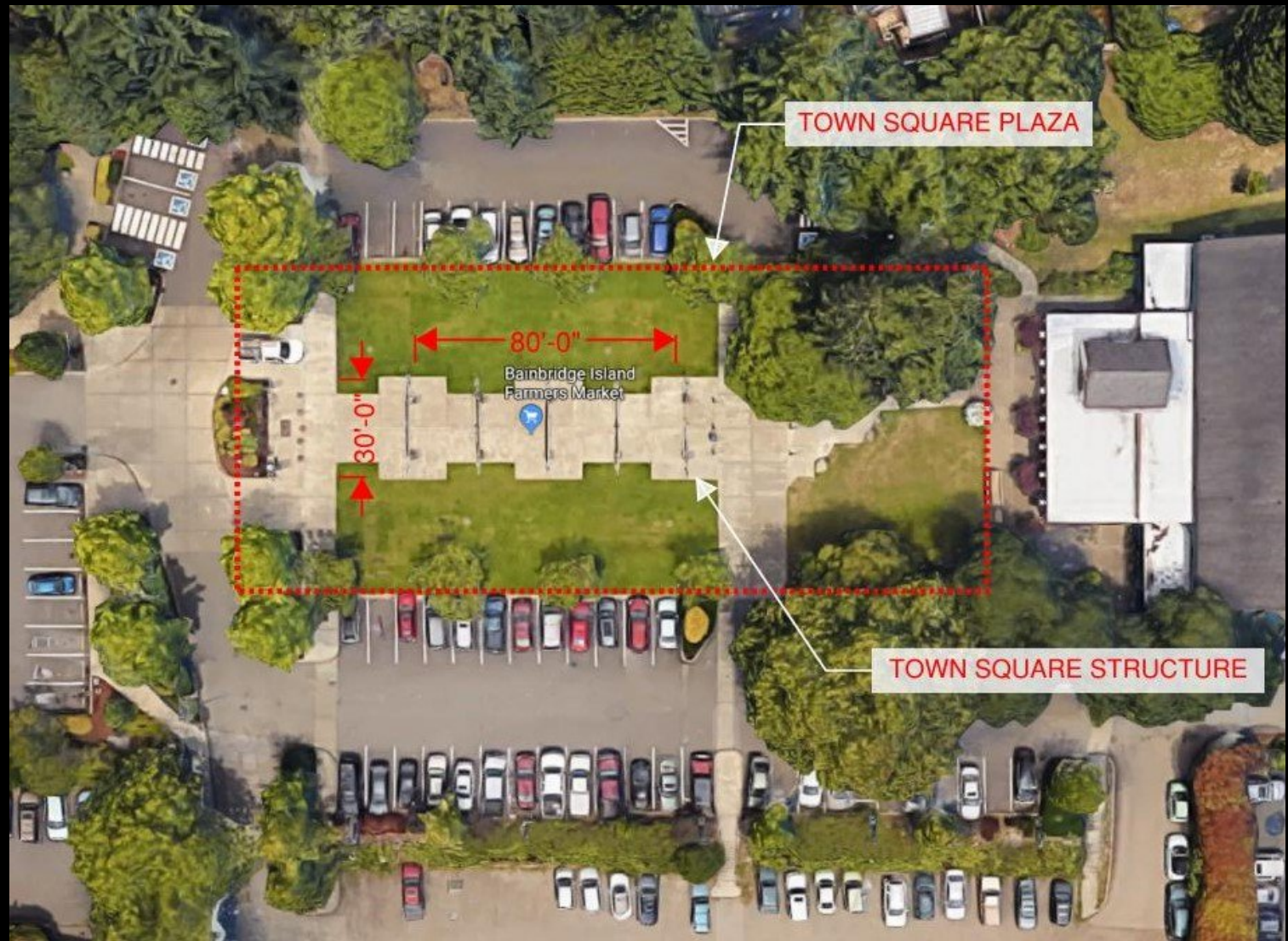
TOWN SQUARE CANOPY COVER



Agenda

1. Background
2. Alternatives
3. Recommended Alternative
4. Costs

Background



Background

- Rain protection for center paved section of Town Square.
- Existing structure not structurally adequate to support a cover.
- Underground utilities limit new footings.
- BPA building improvements

Alternatives

Tent Canopy



Alternatives

Glass Canopy



Alternatives

Metal Canopy



Recommended
Alternative

Retractable Canopy

Least risk
Lowest cost
Least maintenance
Most versatile



Projected Costs

Estimate of Costs

Demolition and Site Work	\$ 22,000
Structural Supports	\$ 28,000
Canopy System	\$ 72,000
<u>Electrical Upgrades</u>	<u>\$ 20,000</u>
Sub-Total	\$142,000
<u>Planning Contingency (20%)</u>	<u>\$ 28,000</u>
Total	\$170,000

Current Budget Available

Capital Funds	\$65,000
<u>Operating Funds</u>	<u>\$16,000</u>
Total	\$81,000

Funding Shortfall \$89,000



Discussion



CITY OF
BAINBRIDGE ISLAND

City Council Study Session Agenda Bill

MEETING DATE: December 3, 2019

ESTIMATED TIME: 15 Minutes

AGENDA ITEM: (8:10 PM) Proposal for Matching Funds for Dana's Trail - Councilmember Schneider,

SUMMARY: Council will discuss a request from Squeaky Wheels for City funding and staff support for a proposed project, "Dana's Trail," to be constructed on Bainbridge Island School District (BISD) property.

AGENDA CATEGORY: Discussion

PROPOSED BY: City Council

RECOMMENDED MOTION: Discussion.

STRATEGIC PRIORITY: Reliable Infrastructure and Connected Mobility

FISCAL IMPACT:

Amount:	
Ongoing Cost:	
One-Time Cost:	
Included in Current Budget?	

BACKGROUND: Squeaky Wheels has provided the following information to inform Council's discussion:

1. "Key points and cost summary" which states briefly why the trail is important (supports Safe Routes to School, reduces Bainbridge schools' carbon footprint) and quickly summarizes expected completion costs
2. "Detailed cost estimate for Dana's trail" which provides photos of proposed improvements as well as a detailed cost breakdown
3. Map of Dana's Trail
4. Map of Dana's Trail showing school connections

ATTACHMENTS:

[Squeaky Wheels Offer for Dana's Trail](#)

[Dana's Trail Key Points and Cost Summary](#)

[Dana's Trail Detailed Cost Estimate](#)

[Dana's Trail Map](#)

[Dana's Trail Schools Map](#)

FISCAL DETAILS: Additional detail on the structure of a proposed agreement or commitment with either Squeaky Wheels or BISD is needed for City staff to properly assess financial impacts and legal issues.

Fund Name(s):

Coding:



Dear Ms. Smith

Squeaky Wheels—a non-profit 501-c-3 organization supporting cycling on Bainbridge—is offering to commit up to \$30,000 in cash to the City of Bainbridge Island towards the completion of the section of Dana’s trail between Madison Avenue and New Brooklyn.

Our commitment is contingent upon the city’s commitment of a sum equal to or greater than \$30,000: reflecting a COBI-Squeaky Wheels partnership in completing this segment of the trail. Squeaky Wheels funding would cover: a) signs, trail marking and striping and small community trail work (such as clearing brush etc); and b) education and outreach to the BI community. We request that COBI’s contribution pay for any major construction or infrastructure projects such as sidewalk completion and curb cuts as well as any engineering design costs.

Squeaky Wheels’ funding is dependent upon the following issues outlined below. We expect that all of these issues can be easily accommodated and resolved in future discussions:

1. The Madison-New Brooklyn section of Dana’s trail must be completed on or before December 31, 2020. In addition, an MOU, outlining the commitment between COBI and Squeaky Wheels shall be signed on or before December 31, 2019. Sufficient progress on the trail should be made by May 2020 in time for Bike to School Day celebrations.
2. The trail will be named Dana’s Trail in honor of Dana Berg, a founding member and president of Squeaky Wheels, as well as a prominent business member of the Bainbridge Community. Dana’s hard work led to the development of much of the current infrastructure of the trail. Sadly she passed away in 2015 before her work could be completed. Squeaky Wheels believes that her dedication and love of the Bainbridge Island community should be recognized.

In addition to the above, it is important that COBI recognizes that the Madison-New Brooklyn section is only a portion of a much larger cycling and walking trail that will ultimately extend from Highway 305 to the Sakai intermediate school. The current section is under the jurisdiction of the Bainbridge School District. The Parks District is in its final stages of designing a trail across the Sakai property from 305 to Madison, which they expect will connect directly to the section of Dana’s trail described above. Any work on the current section must be integrated with the Parks District, the School District and any other organizations that are working on the larger trail system.

Paula Holmes-Eber, President

Dana's trail completion plan:

Key points regarding the Madison-New Brooklyn section

1. Currently there are **no** official Safe Routes to School on Bainbridge Island despite a national and Washington state initiative promoting the development of such routes to reduce our carbon footprint and improve student fitness and health
<https://www.wsdot.wa.gov/LocalPrograms/SafeRoutes/default.htm>
2. A paved trail exists between Madison Ave and New Brooklyn Ave that would enable students to easily bike and walk between *five* Bainbridge Schools: Ordway, Commodore, Bainbridge High School, Woodward and Sakai. However, while the trail is 95% complete and many students and adults do use it informally, the trail is not marked and is not official. As a result, the route fails to meet the Safe Routes to School test.
3. Fortunately, with a very tiny budget, this trail could easily be completed and upgraded, enabling Bainbridge and its schools to take action on climate change and offer an environmentally friendly alternative to driving to school (a practice that results in an unacceptably high carbon footprint by the schools and causes major traffic congestion on Highway 305, at the Madison roundabout, and at the intersection of Sportsman's Club and New Brooklyn several times a day).
4. The trail improvements are simple:

A) Add signage	\$3,000
B) Add striping and pavement marking	\$5,000
C) Add a curb, finish a sidewalk and create an official trail around the gate at the entrance from New Brooklyn	\$20,000
D) Improve the paving in front of Bainbridge Youth Services (optional)	\$15,000
Total estimated cost	\$43,000
Total estimated cost without paving	\$28,000

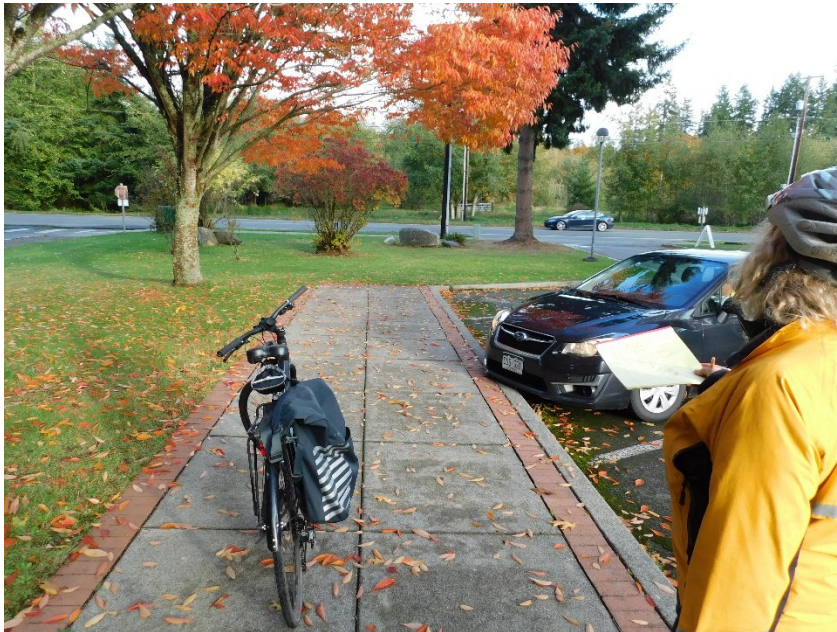
Recommended improvements: Dana's Trail

Phase 1: Madison to New Brooklyn

Madison entrance

1) 75 Linear feet (LF) New 5' wide Concrete Sidewalk

\$15K



2) Curb transition

\$3K



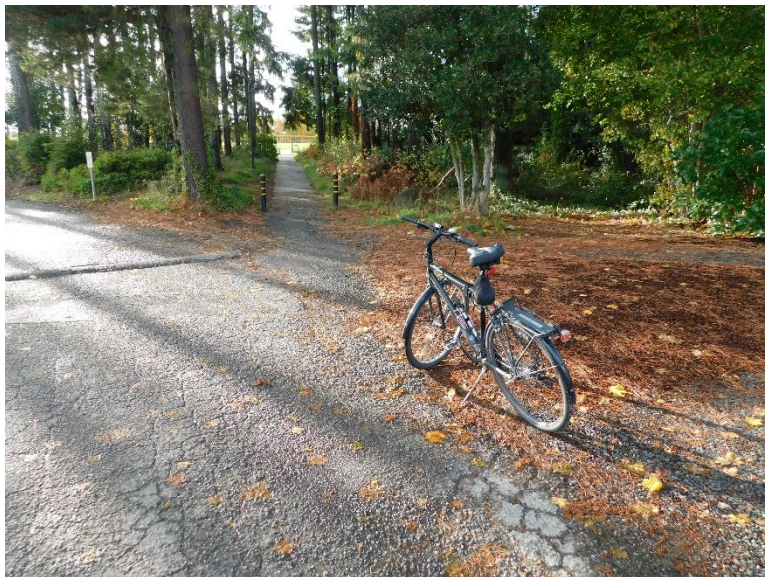
3) 150' LF new 5' wide Asphalt Shoulder (optional)

\$15K

And/or

3a). 300' LF Pavement marking and Bike Symbols

\$3K



New Brooklyn entrance

4) 200' LF Pavement marking and Bike Symbols

\$2K



5) Trail around gate

\$2K



Throughout trail

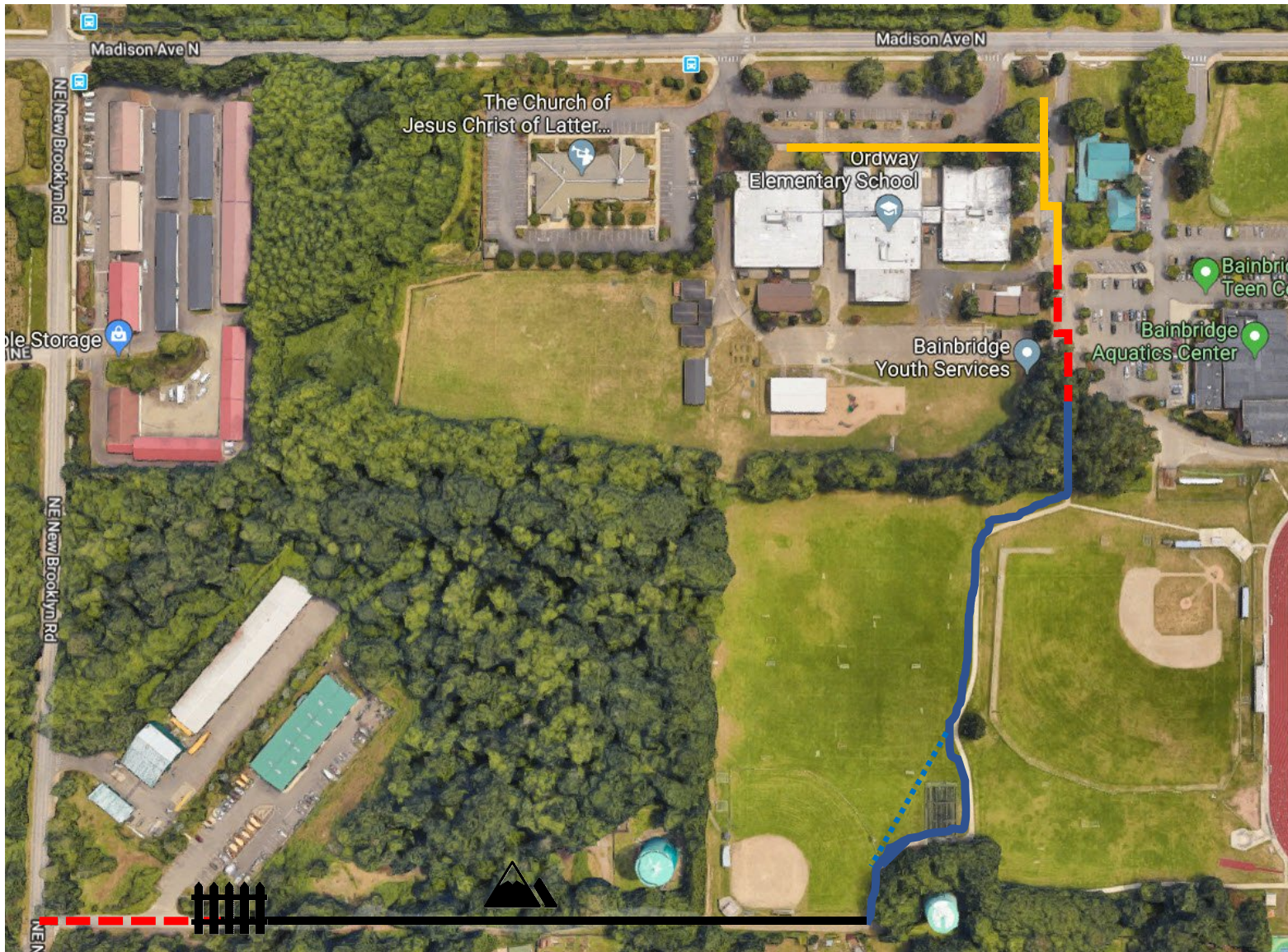
6) Proposed guide signs—QTY 7.

\$3K for all



Total estimated cost \$43 K





Dana's trail:
Existing Condition

Existing paved walkway

Existing Gravel road

Unmarked low-volume roadway

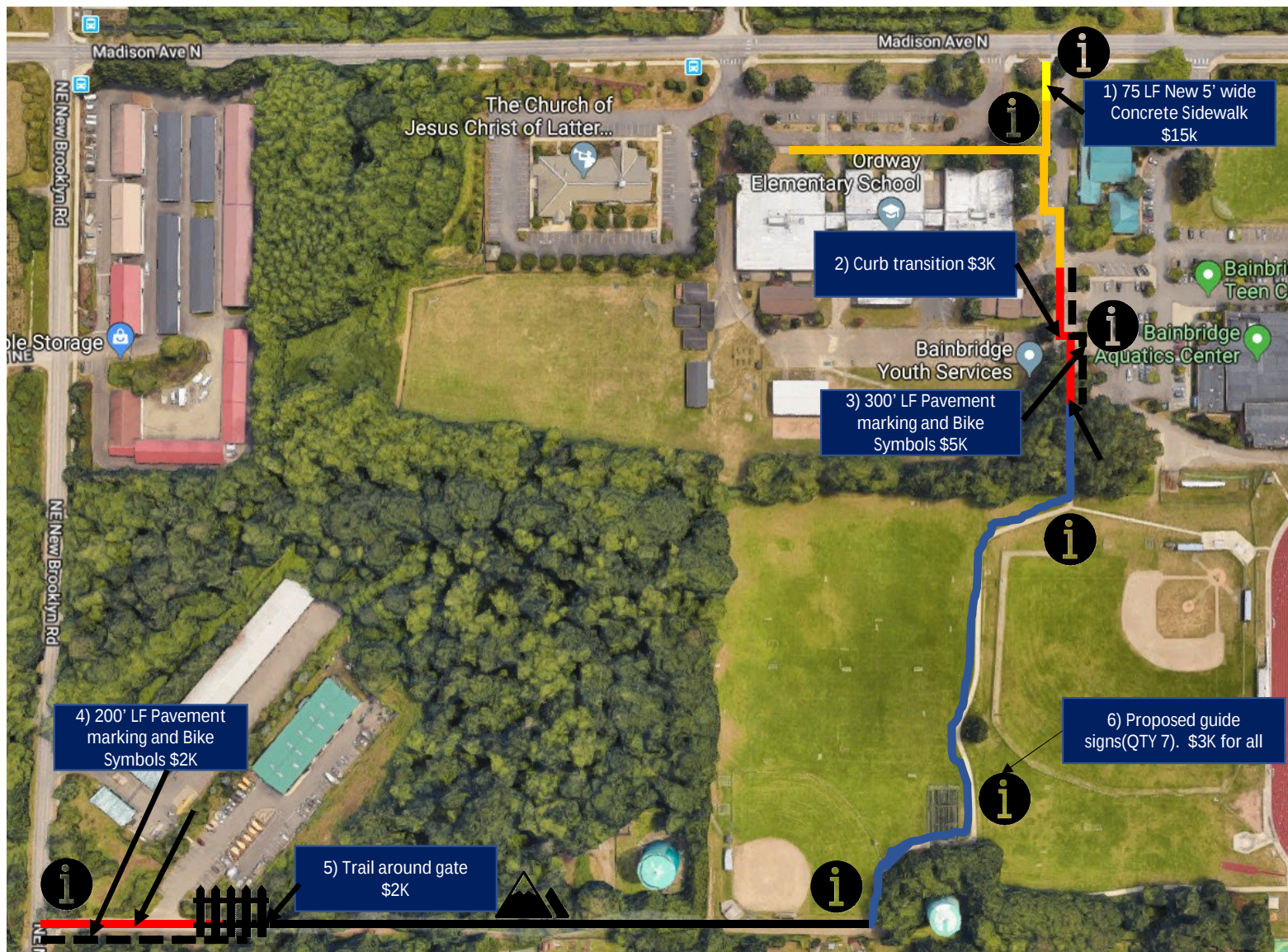
Existing Sidewalk

Unofficial use track

Existing Closed
Gate

Existing Hill





Dana's trail: Proposed completion

New Concrete Sidewalk

Improved Shoulder

New Pavement Marking

Proposed guide sign



Existing Closed gate



Existing Hill





CITY OF
BAINBRIDGE ISLAND

City Council Study Session Agenda Bill

MEETING DATE: December 3, 2019

ESTIMATED TIME: 10 Minutes

AGENDA ITEM: (8:25 PM) Communications with Advisory Committees - Mayor Medina,

SUMMARY: Council will discuss communications with advisory committees.

AGENDA CATEGORY: Discussion

PROPOSED BY: City Council

RECOMMENDED MOTION: Discussion.

STRATEGIC PRIORITY: Good Governance

FISCAL IMPACT:

Amount:	
Ongoing Cost:	
One-Time Cost:	
Included in Current Budget?	

BACKGROUND:

ATTACHMENTS:

FISCAL DETAILS:

Fund Name(s):

Coding:



CITY OF
BAINBRIDGE ISLAND

City Council Study Session Agenda Bill

MEETING DATE: December 3, 2019

ESTIMATED TIME: 15 Minutes

AGENDA ITEM: (8:35 PM) Bainbridge Island Community Bill of Rights Ordinance - Councilmembers Nassar and Peltier,

SUMMARY:

At the October 15, 2019 study session, representatives from CELDF (Center for Environmental Legal Defense Fund) introduced the proposed draft ordinance and the attached memo ("Re: Rights of Nature in the City of Bainbridge Island") that was prepared by a CELDF attorney. The ordinance has now been revised and is returning to Council for additional review and discussion. If a majority of Council desires to pursue the adoption of a Community Bill of Rights Ordinance, extensive staff review of the proposed language will be required by all City departments, including in-depth legal review by the City Attorney's Office.

AGENDA CATEGORY: Discussion

PROPOSED BY: City Council

RECOMMENDED MOTION:

Discussion.

STRATEGIC PRIORITY: Green, Well-Planned Community

FISCAL IMPACT:

Amount:	
Ongoing Cost:	
One-Time Cost:	
Included in Current Budget?	

BACKGROUND:

ATTACHMENTS:

[Updated Bainbridge Island Community Bill of Rights Ordinance](#)

FISCAL DETAILS: N/A - discussion only

Fund Name(s):

Coding:

ORDINANCE NUMBER 2019-X
Bainbridge Island Community Bill of Rights

An Ordinance of the City Council of the City of Bainbridge Island promoting the City's Comprehensive Plan and the Sustainability Plan contained within; establishing Rights of Nature for the Natural Communities and Ecosystems of Bainbridge Island and Puget Sound; asserting, protecting, and promoting the fundamental rights of Bainbridge Island citizens, both present and future, to clean air, clean water, clean soil, and a sustainable future.

WHEREAS, built on the right of local community self-governance, this Ordinance establishes the legal rights of nature, which includes ecosystems and natural communities for Bainbridge Island and the surrounding marine environment of the Salish Sea they are connected to, in order to secure, protect, and promote our unalienable rights and the right of future generations to live in a climate system capable of sustaining human societies with access to clean air, clean water, and clean soil; and

WHEREAS, a number of specific examples show the destruction of the environment upon which all living things ultimately depend: the loss of 60% of animal populations since 1970, the accelerated nature of global warming, unabated deforestation practices ongoing around the world, dangerous concentrations of CO₂ present in the atmosphere, the destruction of entire marine ecosystems; regionally, Salish Sea marine water quality continues to deteriorate, and some species, like Chinook salmon and Southern Resident orcas, are dangerously below federal recovery goals and are not improving; and

WHEREAS, in response to the catastrophic consequences of exploiting the natural world for profit, the worldwide, national, and local environmental communities are urging governments to adopt a new paradigm base upon recognition that both individual human beings and ecosystems and natural communities have fundamental environmental rights which should be recognized by laws, that the health of the world's populations and ecosystems depends on the full protection of these rights, and that corporate rights can no longer be allowed to take precedence over these rights to human and environmental health and well-being; and

WHEREAS, in the last fifty years, national and state governments have attempted to address the escalating environmental crisis by adopting specific environmental protection laws, such as the Clean Water Act, Clean Air Act, National Environmental Policy Act and California Environmental Quality Act that limit pollution and resource consumption; but those laws have proven inadequate to provide long-term protection of our rights to clean air, water, soil, sustainable food systems, and the rights of natural ecosystems to exist and flourish; and

WHEREAS, the inadequacy of these laws results, in part, from the underlying legal assumption that the natural world is "property", which may be used by its owners -- largely corporations and governments -- for their own, private, short-term economic benefit, generally with minimal regard for the health of the environment; and

WHEREAS, this ordinance only enforces environmental liability against large corporations and governments, not small businesses and individuals, because the limited liability for those large entities

requires additional legal mechanisms to ensure responsible environmental actions; and

WHEREAS, as declared in the City’s Comprehensive Plan, serving also as the City’s Sustainability Plan, preserving and protecting the environmental resources and natural amenities of Bainbridge Island and Puget Sound is a foundational component for the Vision of our City; and

WHEREAS, Guiding Principle 6 mandates that policy action and direction nurture Bainbridge Island as a sustainable community by meeting the needs of the present without compromising the ability of future generations to meet their own needs, therefore articulating the City’s commitment to promoting Intergenerational Equity on Bainbridge Island; and

WHEREAS, there are numerous specific examples of policy statements and laws based on this new paradigm that recognize the rights of the natural world to exist, persist, thrive and naturally evolve, including: the Constitution of Ecuador, amended to include the rights of nature in 2008; the city of Toledo’s Lake Erie Bill of Rights in 2019, and the laws of other local governments in California, Colorado, Oregon, Maine, Maryland, New Hampshire, New Mexico, Ohio, Pennsylvania, and New York, all which have adopted similar measures; and

WHEREAS, locally, the City of Bainbridge Island has adopted the following Resolutions to implement the City’s Comprehensive Plan, promote Intergenerational Equity, and emphasize Bainbridge Island’s commitment to local, national, and global environmental causes and concerns: Resolution No. 2016-21, declaring the second Monday in October as Indigenous Peoples Day in the City of Bainbridge Island; Resolution No. 2017-13, declaring the month of April to be Celebrate Trees! Earth Month Bainbridge Island; No. 2017-18, adopting the *Bainbridge Island Community Forest Plan*; Resolution No. 2017-20, affirming the City of Bainbridge Island’s commitment to meet or exceed goals established in the *Paris Climate Agreement*; Resolution No. 2019-12, affirming the importance of the Southern Resident orca whales to the identity and values of Bainbridge Island and the broader Salish Sea region. The City is committed to fully implementing its Comprehensive Plan to further effectuate rights of natural communities and ecosystems of the City of Bainbridge Island.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF BAINBRIDGE ISLAND DOES HEREBY ORDAIN AS FOLLOWS:

Section 1. Title 4, Chapter 1 of the Bainbridge Island Municipal Code is hereby created to read as follows:

Chapter 4.01 GENERAL PROVISIONS

4.01.010 Title

This chapter shall be known as the Community Bill of Rights in the City of Bainbridge Island.

4.01.020 Findings

The City Council finds and declares:

a. With the exponential growth in human population and its increasing per capita resource consumption, the planet cannot sustain our current way of life, which is destructive to the natural elements upon which all species

depend -- the air, water, climate, soil and other fundamental elements of the world.

b. These rights are not sufficiently safeguarded by the existing body of national and international environmental policies and laws, which are grossly inadequate to avert the mounting environmental crisis.

c. While progress is being made in some areas, many key indicators of Salish Sea Puget Sound ecosystem health are not showing improvement. Worse yet, some key indicators, such as resident orca and Chinook salmon populations, remain in a perilous state.

d. The inadequacy of the current framework of state, national and international policies and laws necessitates a re-examination of the underlying societal and legal assumptions about our relationships with the environment and a renewed focus on effectuating these rights.

4.01.030 Purpose

This Chapter is created and exists for the purpose of securing the right of natural ecosystems and natural communities on Bainbridge Island and those connected to the Salish Sea, as well as codifying Bainbridge Island's commitment to achieving sustainability, among other things: (1) asserting the City's commitment to preserve and protect our natural environment and all of its components and ecosystems, including, but not limited to, the air, water, soil, and climate upon which all living things depend; (2) promoting sustainable management of groundwater supply, energy production and distribution transportation, waste disposal, and sustainable systems of food production and distribution; and (3) to the full extent legally possible, subordinating the short-term, private, financial interest of large corporations and governments to the common, long-term interest of achieving environmental and economic sustainability.

4.01.040 Rights of Bainbridge Island Residents and The Natural Environment

(a) All residents of Bainbridge Island possess a fundamental right to a healthy environment, which includes, but is not limited to: clean water from sustainable sources; clean indoor and outdoor air; a sustainable food system; a stable, healthy climate system that supports a flourishing biodiverse land and marine environment; comprehensive waste and water disposal systems that do not degrade the environment; and a sustainable energy future based on renewable energy sources.

(b) Ecosystems and natural communities within the City of Bainbridge Island possess the fundamental right to naturally exist, flourish, regenerate, evolve, and be restored.

(c) All residents of Bainbridge Island possess a fundamental right of self-government, which includes, but is not limited to, the following rights: first, the right to a system of local government founded on the consent of the people of the municipality; second, the right to a system of local government that secures their rights; and third, the right to alter any system of local government that lacks consent or fails to secure their rights; and third, the right to alter any system of local government that lacks consent or fails to secure and protect the people's rights, health, safety, and happiness.

(d) All residents of the City of Bainbridge Island possess the fundamental right to enforce this law free of interference from corporations, other business entities, and governments. That right includes the right of

residents to be free from ceiling preemption, because this law expands right-protections for people and nature above those by less-protective state, federal, and international law.

4.01.050 Annual Report

At least once during every 12 month period, City staff shall prepare a written report to the City Council and community on the state of the environment in and around Bainbridge Island, including Puget Sound environment, that includes the following:

1. An assessment of the state of Puget Sound, drawing from the annual report prepared by the Puget Sound Partnership and other sources, such as the Puget Sound Keepers;
2. An assessment of impacts and contributions to water quality, primarily but not limited to storm water, as it impacts Bainbridge Island and the larger Puget Sound ecosystem;
3. A sub-report prepared by the City's Climate Change Advisory Committee in conjunction with City staff on the state of the Earth's atmosphere, climate change, and Bainbridge Island's progress in doing its part to not only reduce its greenhouse gas emissions but to also show leadership in addressing climate change;
4. A sub-report by the City's Environmental Technical Advisory Committee in conjunction with City staff on the state of the Island's groundwater resources, including updates on development of a groundwater management plan and implementation of that plan;
5. An overall summary of Bainbridge Island's progress in meeting the environmental stewardship goals and policies of our comprehensive plan.

4.01.055 Sustainability Test

The City shall take all necessary steps to fulfill the purpose of this Chapter, including, but not limited to, an evaluation by City Staff, the Planning Commission, and the Climate Change Advisory Committee, and all City projects, plans, activities, and legislation for consistency with the environmental sustainability goals and policies contained in the City's comprehensive plan, and for consistency with this Chapter. Any inconsistencies shall be resolved within 6 months of identification.

4.01.060 Annual Hearing

The City Council shall annually review the report, conduct a public hearing, assess the City's progress in effectuating and enforcing the Comprehensive Plan, Salish Sea recovery actions identified in the bi-annual State of the Sound report, and the policies and provisions of this Chapter. The City Council shall provide direction to staff to ensure compliance with the Comprehensive Plan's provisions and with the fundamental rights of the people and natural communities of the City of Bainbridge Island and Salish Sea secured herein.

4.01.070 Compliance Assurance

(a) The City, or any resident of the City, may commence enforcement of this chapter only after:

- (1) The City or resident provides a notice letter to the alleged violator that describes the violative action(s) and necessary steps to remedy the violations(s);
- (2) Within 60 days of receipt of the notice letter, the violator neither remedies the violations nor agrees to mediate the issue; and
- (3) Within 120 days of receipt of the notice letter, the violator has not remedied the violation, either as stated in

the notice letter or as agreed to in mediation.

(b) The City of resident providing a notice letter shall also publish the notice letter, or at minimum the City or resident's name, contact information, date of letter, alleged violator's name, and summary of alleged violation and proposed remedy, in the principal newspaper or media source for Bainbridge Island, daily or as frequently as possible, for a least three weeks beginning within 30 days of providing the letter to defendant. The City (if it did not provide the letter) and any resident may request to be informed of proceedings in resolving the alleged violation, and have a right to join in mediation.

(c) Any government or business entity with annual revenue greater than \$250,000 that willfully violates and provision of this law must be subject to a civil penalty in the amount of \$10,000 per day of violation.

(d) Any government or business entity with annual revenue greater than \$250,000 that willfully violates any provision of this law must be liable for any damages to an ecosystem or natural community caused by the violation. Damages must be measured by the cost of restoring the ecosystem or natural community to its state before the injury, and must be paid to City of Bainbridge Island to be used exclusively for the full and complete restoration of the ecosystem or natural community.

(e) Governments and business entities with annual revenue greater than \$250,000 engaged in activities that violate the rights and provisions of this law must be strictly liable for all harms and rights violations resulting from those activities.

(f) Ecosystems and natural communities within the City of Bainbridge Island may enforce or defend this law through an action brought in the name of the ecosystem or natural community as the real party in interest.

(g) The City of Bainbridge Island or any resident of the City of Bainbridge Island may enforce or defend this law in any appropriate court. Any resident, and any ecosystem or natural community, has the right to intervene in any action concerning this law in order to enforce or defend it, and in such an action, the City of Bainbridge Island must be deemed not to adequately represent their particularized interests.

Section 2. Any provision of the Bainbridge Island Municipal Code or appendices thereto inconsistent with the provisions of this Ordinance, to the extent of such inconsistencies and no further, is hereby repealed or modified to that extent necessary to effect the provisions of this Ordinance.

Section 3. If any section, subsection, sentence, clause, or phrase of this Ordinance is for any reason held to be invalid or unconstitutional by a decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of this Ordinance. The City Council hereby declares that it would have passed this Ordinance and each and every section, subsection, sentence, clause, or phrase not declared invalid or unconstitutional without regard to whether any portion of the ordinance would be subsequently declared invalid or unconstitutional.

Section 4. The Mayor shall sign and the City Clerk shall attest to the passage of this Ordinance. The City Clerk shall cause the same to be published once in the official newspaper within 15 days after its adoption. This

Ordinance shall become effective 30 days from its adoption.

APPROVED AS TO FORM:

Joe Levan
City Attorney

Kol Medina
Mayor



CITY OF
BAINBRIDGE ISLAND

City Council Study Session Agenda Bill

MEETING DATE: December 3, 2019

ESTIMATED TIME: 15 Minutes

AGENDA ITEM: (8:50 PM) City Council Committee and Liaison Assignments - Mayor Medina,

SUMMARY: Council will discuss committee and liaison assignments for 2020.

AGENDA CATEGORY: Discussion

PROPOSED BY: City Council

RECOMMENDED MOTION: Discussion.

STRATEGIC PRIORITY: Good Governance

FISCAL IMPACT:

Amount:	
Ongoing Cost:	
One-Time Cost:	
Included in Current Budget?	

BACKGROUND:

ATTACHMENTS:

[Draft - 2020 Council Assignments.pdf](#)

FISCAL DETAILS:

Fund Name(s):

Coding:

LOCAL AND REGIONAL BOARD / COMMITTEE ASSIGNMENTS

Group	Meeting Date	Time	Location	2019 Assignments	NOTES
Bainbridge Island Healthy Youth Alliance	Quarterly		Bainbridge	Blossom	
Hwy 305 Task Force	As called		Suquamish, usually	Medina, Peltier, Deets	
Housing Kitsap Board	1 st and 3 rd Tuesdays	3:15 p.m./ 11:00 a.m.	Bremerton	Medina, Tirman	
Intergovernmental Work Group	Quarterly; 3 rd Monday	5:30 p.m.	Bainbridge	Peltier, Medina	
Kitsap 911 Board	1 st Tuesday (some)	2:00 p.m.	Bremerton	Medina	
Kitsap Economic Development Alliance	3 rd Thursday on quarterly basis	3:00 – 6:00 p.m.	Various county locations	Medina, Schneider	
Kitsap Emergency Management Council	1 st Tuesday (some)	12:30 pm	Bremerton	Medina	
Kitsap Health District Board	1 st Tuesday	1:30	Bremerton	Medina	

LOCAL AND REGIONAL BOARD / COMMITTEE ASSIGNMENTS

Group	Meeting Date	Time	Location	2019 Assignments	NOTES
Kitsap Regional Coordinating Council (KRCC) Executive Board	1 st Tuesday	10:15 a.m.	Bremerton	Medina, Tirman	
KRCC Transportation Policy Board	3 rd Thursday (April, July, October)	3:15 p.m.	Bremerton	Tirman, Medina (alternate)	
KRCC Land Use Policy Board	3 rd Tuesday	1:30 p.m.	Bremerton	Nassar, Peltier (alternate)	
Kitsap Transit Board	1 st and 3 rd Tuesdays	8:30 a.m.	Bremerton	Medina	
Puget Sound Clean Air Agency Advisory Council	2 nd Wednesdays (5-8 meetings a year)	9:00 a.m.	Seattle	Schneider	
Puget Sound Regional Council Transportation Policy Board	2 nd Thursday	9:30 a.m.	Seattle	Tirman (alternate)	
Puget Sound Regional Council Growth Management Policy Board	1 st Thursday	10 a.m.	Seattle	Peltier (alternate)	
West Central Local Integrating Organization	Fridays, Quarterly	varies	Bremerton	Medina	
West Sound Alliance	As called		Bremerton	Nassar	

LIAISONS TO CITIZEN ADVISORY COMMITTEES AND COMMISSIONS

Group	Meeting Date	Time	Assignments	NOTES
Climate Change Advisory Committee	3 rd Wednesday	6:30 p.m.	Deets	
Cultural Funding Advisory Committee – <i>Council member acts as liaison and non-voting Chair</i>	Summer/autumn 2019	TBD	Nassar (Chair), Schneider (Co-chair)	N/A – next funding cycle scheduled for 2021
Design Review Board	1 st /3 rd Mondays	2:00 p.m.	Peltier	
Environmental Technical Advisory Committee	3 rd Thursday	3:00 p.m.	Nassar	
Ethics Board	3 rd Monday	6:30 p.m.	Deets	N/A – Revised program does not have a Council liaison
Historic Preservation Commission	1 st Thursday	2:00 p.m.	Blossom	
Human Services Funding Advisory Committee	Summer/autumn 2020		Schneider, Tirman (from 2018 cycle)	
Island Center Subarea Plan Steering Committee	1 st /3 rd Wednesdays	6:30 p.m.	Blossom	
LEOFF 1 Disability Board – 2 Council members are members	TBD	TBD	Nassar; Schneider	
Lodging Tax Advisory Committee – Council member acts as Chair; second Council member is non-voting Vice-Chair	Spring/Summer		Nassar (Chair); Tirman (Vice Chair)	
Planning Commission	2 nd /4 th Thursdays	7:00 p.m.	Blossom	
Utility Advisory Committee	2 nd Wednesday	5:00 p.m.	Nassar	

COUNCIL AD HOC COMMITTEES

Group	Meeting Date	Time	Assignments
Affordable Housing Ad Hoc Committee			Blossom, Peltier, Schneider
Suzuki Ad Hoc Committee			Tirman, Nassar, Blossom
Youth Mental Health Workshop Proposal			Deets, Tirman, Nassar

LIAISONS TO CITIZEN TASK FORCES

Group	Meeting Date	Time	Assignments
Race Equity Task Force – <i>Council members are liaisons</i>	1 st Thursday	6:30 p.m.	Nassar, Deets



CITY OF
BAINBRIDGE ISLAND

City Council Study Session Agenda Bill

MEETING DATE: December 3, 2019

ESTIMATED TIME: 10 Minutes

AGENDA ITEM: (9:05 PM) Future Council Agendas,

SUMMARY: Council will review future Council agendas.

AGENDA CATEGORY: Discussion

PROPOSED BY: Executive

RECOMMENDED MOTION: Discussion

STRATEGIC PRIORITY: Good Governance

FISCAL IMPACT:

Amount:

Ongoing Cost:

One-Time Cost:

Included in Current Budget?

BACKGROUND:

ATTACHMENTS:

[City Council Regular Business Meeting, December 10, 2019](#)

FISCAL DETAILS:

Fund Name(s):

Coding:



CITY OF
BAINBRIDGE ISLAND

**CITY COUNCIL REGULAR BUSINESS MEETING
TUESDAY, DECEMBER 10, 2019**

BAINBRIDGE ISLAND CITY HALL
280 MADISON AVENUE N.
BAINBRIDGE ISLAND, WASHINGTON

AGENDA

1. **CALL TO ORDER/ROLL CALL/PLEDGE OF ALLEGIANCE - 6:00 PM**
2. **APPROVAL OF AGENDA / CONFLICT OF INTEREST DISCLOSURE**
3. **PUBLIC COMMENT**
4. **MAYOR'S REPORT**
5. **CITY MANAGER'S REPORT**
6. **PRESENTATION(S)**
 - 6.A **Recognition of Outgoing Council Members - Executive, 10 Minutes**
7. **PUBLIC HEARING(S)**
8. **UNFINISHED BUSINESS**
 - 8.A **Ordinance No. 2019-07, Updating the City's General Code Enforcement Process Contained in Chapter 1.26 BIMC (Placeholder) 10 Minutes**
 - 8.B **Process Workplan for Green Building Code - Planning, 15 Minutes**
20191210_CC_Staff_Memo.docx
Green_Building_Discussion_Council (20191105).pptx
 - 8.C **(XX PM) Ordinance No. 2019-32 Amending BIMC 2.16.020.S. Housing Design Demonstration Projects (HDDP) Program - Planning, 20 Minutes**
HDDP Program Summary
BIMC 2.16.020.S HDDP Program
Comp Plan Goals and Policies to support HDDP
Ordinance No. 2018-31 Limiting the Housing Design Demonstration Project Program to Affordable

8.D (X PM) Options for Suzuki Property Affordable Housing Project - Executive, 15 Minutes

8.E Sustainable Transportation Plan Goals Discussion - Public Works 15 Minutes

8.F (x:00 PM) Sustainable Transportation Professional Services Agreement Award and Budget Amendment - Public Works 10 Minutes

Professional Services Agreement2 - Nelson Nygaard.docx

SCOPE_Bainbridge Sustainable Transportation Plan.pdf

BUDGET_Bainbridge Sustainable Transportation Plan.pdf

SCHEDULE_Bainbridge Sustainable Transportation Plan.pdf

8.G (X:XX PM) Police and Court Project Update and Sustainability Discussion - Public Works, 15 Minutes

8.H (x:xx PM) Downtown Wayfinding Signage Grant Application Funding Request - Public Works, 10 Minutes

BI Downtown Wayfinding Signage LTAC Application

COC Wayfinding Support Letter 082119.pdf

BIDA Letter of support COBI LTAC.docx

9. NEW BUSINESS

9.A Memorandum of Understanding with Seattle Police Department Regarding Agency Participation in the Internet Crimes Against Children (ICAC) Multi-Jurisdictional Task Force - Police, 10 Minutes
NW Regional Task Force Memorandum of Understanding

9.B Winter Weather Preparedness Briefing - Executive, 10 Minutes
12102019 EM Presentation to CC Winter Weather.pptx

9.C Comprehensive Emergency Management Plan (CEMP) Overview - Executive, 10 Minutes
12102019 EM Presentation to CC CEMP.pptx
2019 COBI CEMP Final.docx

9.D Information Technology Division Position Change to Full-Time - Executive, 5 Minutes

10. CITY COUNCIL DISCUSSION

10.A Review Council Ad Hoc Committees - Mayor Medina, 10 Minutes

10.B Proposed 2020 Work Plan for Race Equity Task Force - RETF Representatives and Councilmembers Deets and Nassar, 15 Minutes

11. CONSENT AGENDA

11.A Agenda Bill for Consent Agenda, 5 Minutes

11.B Accounts Payable and Payroll

11.C City Council Study Session Minutes, November 19, 2019

11.D City Council Regular Business Meeting Minutes, November 26, 2019

11.E Ordinance No. 2019-39 Extending the Landmark Tree Ordinance, Ordinance No. 2019-17 - Planning, 5 Minutes

Ordinance No. 2019-39 Extending Landmark Tree Regulations Winslow Area

Exhibit A Work Plan

Exhibit B Winslow Master Plan Study Area

11.F Point Monroe Street Vacation, portion of, and Consideration of Ordinance No. 2019-34 - Public Works 5 Minutes

STAFF REPORT Robbins-Newlon Street Vacation - Point Monroe

Ordinance No. 2019-34 Pt. Monroe Street Vacation - Robbins-Newlon

Street Vacation Application - Pt. Monroe

Pt. Monroe Street Vacation Comments to Date

11.G Cultural Funding Advisory Committee 2020-21 Funding Recommendations - Executive 5 Minutes

Recommendation_for_2020-21_Cultural_Funding_for_CC_11262019-2

11.H Ordinance No. 2019-36 Relating to 2019 4th Quarter Budget and Updated Capital Improvement Plan Amendments - Finance, 5 Minutes

Staff 2019 4th QTR Budget Amendments Transmittal Memo.docx

Ord 2019-36 2019 4th Qtr Budget Amendments

Ord 2019-36 Attachment A - Q4 Budget Amendments

11.I Video Inspection Camera Procurement - Public Works 5 Minutes

Cues QUOTE.pdf

Video Camera Bid Form.pdf

Video Camera Proposed Purchase Order

11.J Old Treatment Plant Pump Station Replacement Project Final Change Order- Public Works 5 Minutes

OTP Pump Station Replacement Change Order Summary Sheet.pdf

11.K Ordinance 2019-24 Updating Bainbridge Island Municipal Code Sections 2.16.040, 2.16.050, 2.16.070, 2.16.110, 18.09.020, 18.09.030, and 18.36.030 Related to Public Participation Meetings

for Short Plats, and Decision Criteria for Site Plan and Design Review and Conditional Use Permits - Planning 5 Minutes

PC Staff Memo re Ord 2019-24

Ord 2019-24 - Revisions to BIMC 2.16, 18.09, and 18.36

Exhibit A Title 2 Changes

Exhibit A Clean

Exhibit B 18.09 Use Table

Exhibit C Use Specific Standards

11.L Resolution No. 2019-29, Updating the Administrative Manual to Reflect the New Subdivision Standards and the New Design Standards and Guidelines - Planning, 5 Minutes

Resolution No. 2019-29 PCD Administrative Manual Updates for Ord 2019-03 and 2019-25

Resolution No. 2019-29 Exhibit A Admin Manual Updated - City Council

11.M Resolution No. 2019-30 Relating to Clean Fuel Standard Endorsement - Councilmember Peltier 5 Minutes

Resolution 2019-30 Relating to Clean Fuel Standards

12. COMMITTEE REPORTS

12.A Committee Reports 5 Minutes

12.B (X PM) Regional Committee Reports by Councilmember Liaisons - Mayor Medina, 10 Minutes

13. FOR THE GOOD OF THE ORDER

14. ADJOURNMENT

GUIDING PRINCIPLES

Guiding Principle #1 - Preserve the special character of the Island, which includes downtown Winslow's small town atmosphere and function, historic buildings, extensive forested areas, meadows, farms, marine views and access, and scenic and winding roads supporting all forms of transportation.

Guiding Principle #2 - Manage the water resources of the Island to protect, restore and maintain their ecological and hydrological functions and to ensure clean and sufficient groundwater for future generations.

Guiding Principle #3 - Foster diversity with a holistic approach to meeting the needs of the Island and the human needs of its residents consistent with the stewardship of our finite environmental resources.

Guiding Principle #4 - Consider the costs and benefits to Island residents and property owners in making land use decisions.

Guiding Principle #5 - The use of land on the Island should be based on the principle that the Island's environmental resources are finite and must be maintained at a sustainable level.

Guiding Principle #6 - Nurture Bainbridge Island as a sustainable community by meeting the needs of the present without compromising the ability of future generations to meet their own needs.

Guiding Principle #7 - Reduce greenhouse gas emissions and increase the Island's climate resilience.

Guiding Principle #8 - Support the Island's Guiding Principles and Policies through the City's organizational and operating budget decisions.



City Council meetings are wheelchair accessible. Assisted listening devices are available in Council Chambers. If you require additional ADA accommodations, please contact the City Clerk's Office at 206-780-8604 or cityclerk@bainbridgewa.gov by noon on the day preceding the meeting.

