

AGENDA
GIG HARBOR CITY COUNCIL STUDY SESSION
Thursday, September 21, 2023 - 3:00 PM
Community Rooms

This meeting may also be accessed through Zoom at <https://zoom.us/j/93216056382> or by calling (253) 215-8782 and entering Meeting ID 932 1605 6382. Please see the public comment & decorum section at the end of this agenda for information on options for making public comments.

CALL TO ORDER/ROLL CALL

DISCUSSION ITEMS

- 1. Introduction of Appointees to the Lodging Tax Advisory Committee - Cory Hull and Lindsey Stover**
Mayor Tracie Markley
- 2. Urban Forestry Management Plan**
Senior Planner Roxanne Robles
- 3. Climate Action Plan**
Senior Planner Roxanne Robles
- 4. Masonic Lodge MOU with Harbor History Museum**
Parks Manager Jennifer Haro

ADJOURN

PUBLIC COMMENT & DECORUM

Public comment will not be accepted at this study session.

AMERICANS WITH DISABILITIES (ADA) ACCOMMODATIONS

ADA accommodations can be provided upon request. Those requiring special accommodations should contact the city clerk at cityclerk@gjgharborwa.gov or (253) 853-7613 at least 24 hours prior to the meeting.



Staff Memorandum

TO: Mayor and City Council

FROM: Roxanne Robles, Senior Planner

SUBJECT: Draft Urban Forestry Management Plan

DATE: September 14, 2023

At the upcoming City Council Study Session on September 14, 2023, city staff will provide a review of the draft Urban Forestry Management Plan (UFMP). The plan has been developed with careful attention to local subject matter experts and public engagement.

Plan Development

Gig Harbor's UFMP was developed with robust geographic systems analysis, an urban tree canopy assessment, community feedback, regional best practices, and feedback from city staff and regional partners. The UFMP was developed in three parts:

- 1. Urban Tree Canopy Assessment:** The consultant utilized remote sensing and available datasets to analyze tree canopy cover and explore potential priority planting areas based on a range of environmental and human factors.
- 2. Outreach:** The consultant conducted interviews with local partners and subject matter experts, as well as staff involved in tree maintenance and urban forestry. Staff and the consultant developed an online survey which was completed by more than 440 respondents. Staff conducted four planning commission meetings to review the deliverables and draft UFMP.
- 3. Strategy & Action Development:** The consultant conducted a review of available data, and utilized the *Indicators of Sustainable Forest Management* tool to develop a set of goals, strategies, and actions specific to Gig Harbor.

The UFMP is structured in five parts:

- 1. Urban Forestry Concepts:** The history of urban forestry and forest planning in Gig Harbor, and an overview of the multidimensional benefits of trees and forests.
- 2. The State Of The Urban Forest:** An overview of the city's urban forest resource including the results of the urban tree canopy assessment, the results of the priority planting analysis, best practices to increase tree planting and canopy cover, and an inventory an analysis of city staff and equipment resources.
- 3. Community Engagement:** An overview of the community outreach conducted and an analysis of the results.
- 4. Goals, Strategies & Actions:** A complete list of goals, strategies, and actions the city can adopt to increase urban forest health and increase tree canopy cover.
- 5. Implementation & Monitoring:** Best practices for UFMP implementation, including a list of 'quick wins' which can be accomplished over the next five years.

Gig Harbor Urban Forest Summary

The City of Gig Harbor currently has 40.7% tree canopy cover, which is higher than a number of other jurisdictions in the region with tree canopy assessment data. The urban tree canopy assessment found that although the city had lost approximately 8 acres of tree canopy cover on private land in the study period (2017-2021), the city had gained 16 acres of tree canopy cover on public land. The increase in likely due to a combination of land preservation, tree planting, and existing tree growth.

Gig Harbor	
Acres	4,009
Park Trees	Unknown
Street Trees	2,537 trees
Land Cover	
Tree Canopy	40.7%
Grass & Vegetation	17.1%
Hard Surfaces	30.3%
Bare Soils	6.5%
Open Water	5.4%
Potential Tree Canopy	
Maximum Potential Canopy Cover	64%
High Priority Planting Acres	393 acres
Investment	
Human Population	12,484
Tree Care Per Capita	\$1.60

Priority Planting Analysis

Increased canopy cover can be achieved strategically through priority planting efforts. The consultant analyzed environmental, housing, and population data and identified a number of priority planting areas. The high or very high priority planting areas amount to about 311 acres, the majority of which are on privately owned land. *This finding points to a need for more clear and enforceable tree regulations as well as more education and resources for property owners to plant and maintain trees.*

Goals, Strategies & Actions

Over the next 20 years, Gig Harbor will be able to enhance the management of the urban forest through the implementation of actions recommended in this plan. The long-range strategic goals provided in this plan will address the three components of a sustainable urban forestry program: Urban Forest Sustainability, Municipal Operations and Community Collaboration and Engagement.

Urban Forest Sustainability			
Goal: Maintain existing canopy and increase canopy cover to 45% over the next 10 years.			
Action ID	Action Short Name	Action Description	KPIs
UFS Strategy 1: Collect and maintain a functional database about the urban forest			
UFS1.1	Complete a comprehensive forest inventory	The inventory should include information such as location, DSH, estimated age, species, condition.	% of city trees with documented tree inspection
UFS1.2	Develop policy to maintain a public tree inventory	Tree information should be collected during any urban forestry or tree work conducted on public trees.	Age of tree inventory data
UFS1.3	Develop a standard tree inspection protocol	A standard tree inspection protocol which will prioritize plant health care needs and requirements and integrating this information into a functional data management system.	Age of tree inventory data
UFS1.5	Develop a relative performance index (RPI)-	The RPI is a composite of tree species performance based on resilience to local climate conditions, drought, pests, and other forestry issues.	% of city trees with RPI calculation
UFS Strategy 2: Manage tree population species, age distribution, and density			
UFS2.1	Identify mature/over-mature trees	For any tree inventory efforts, collect DSH to estimate tree age and understand specific age distribution of coniferous and evergreen populations. Gradually replace those trees which are mature/over-mature.	Average DSH of public trees; species distribution of public trees

UFS2.2	Document tree information when conducting work	Document and track tree species information when performing tree work to understand and identify unsuitable tree species.	RPI
UFS Strategy 3: Adopt an overall canopy goal			
UFS3.1	Develop urban tree canopy goal	The city has a goal of 45% tree canopy cover by 2033. Current canopy coverage is 41% and could be as high as 64% if priority planting areas are fully planted.	% tree canopy cover
UFS3.2	Conduct UTC every 5 years	Conducting an UTC regularly will allow the city to analyze and correct for any canopy loss that detracts from overall canopy goals.	% tree canopy cover
UFS Strategy 4: Increase overall canopy coverage			
UFS4.1	Maintain and increase tree canopy cover	Adopt a city policy to avoid any net loss to the overall tree canopy.	% tree canopy cover
UFS4.2	Update tree preservation ordinance	Revise the city's tree regulations, and related development regulations, based on current best management practices discovered during UFMP development.	Date of ordinance adoption/update
UFS4.3	Increase canopy through priority planting efforts	Utilize urban tree canopy data (GIS) to identify areas where tree planting can enhance overall canopy cover, improve stormwater management and/or protect existing natural resources.	% tree canopy cover
UFS4.4	Set a replacement ratio of 3:1 for trees removed in natural and preservation areas	Preservation areas constitute a smaller portion of the UTC, but are the densest areas of coverage, a progressive replacement ratio for these areas ensures net canopy gain over time.	Number of trees planted
UFS Strategy 5: Plant suitable trees and schedule replacement of unsuitable trees			
UFS5.1	Develop a tree planting and replacement plan	Species demonstrating poor performance should not be planted in the future. The planting and replacement plan should include phased removals and replacement of existing poor-performing species.	RPI
UFS5.2	Update recommended planting lists	Update recommended planting lists public and private use to reflect current best management practices and those species which are demonstrated to be most resilient to climate change.	Date of planting list revision

UFS5.3	Coordinate across the region to develop nursery stock	It can take time to grow nursery stock. As the city phases out certain low-RPI species and updates the recommended planting lists it will be important to work with local nurseries, regional jurisdictions, tribal leaderships and conservation districts to have a supply of appropriate species available.	Species available for planting
UFS Strategy 6: Include ecosystem services of trees in long range planning			
UFS6.1	Account for ecosystem services	Trees provide innumerable ecosystem services and should be accounted for in planning for climate action and stormwater infrastructure.	Ecosystem benefits estimates from i-Tree Eco

Municipal Operations

Goal: Develop policies that promote routine inspection and formalize city tree management strategies.

Action ID	Action Short Name	Action Description	KPIs
MO Strategy 1: Maintain the Urban Forestry Management Plan			
MO1.1	Draft annual work plans for UFMP implementation	Annual work plans for the implementation of specific actions to advance UFMP goals and allow the city to adjust targets as necessary.	Annual work plans
MO1.2	Establish and convene an urban forestry work group	An engaged urban forestry work group can advance UFMP goals and develop annual work plans.	Number of work group meetings
MO1.3	Review and revise the UFMP every 5 years	Regular review and revision of the UFMP will allow the city to align objectives and actions into the annual work plan as well as community values and expectations for the urban forest.	Date of UFMP update
MO Strategy 2: Staff and train appropriately for urban forest management			
MO2.1	Establish protocol for ongoing training	Each city staff person who makes decisions impacting the urban forest should receive annual training specific to their duties. This will strengthen the qualifications of the urban forestry work group and increase their capacity to implement the UFMP.	Number of urban forestry training hours per FTE
MO2.2	Create a dedicated urban forester/arborist position	A dedicated arborist position can advise and direct on urban forestry issues and implement the UFMP.	FTE working in urban forestry
MO Strategy 3: Establish trees as infrastructure			

MO3.1	Include funding for trees and planting sites in capital improvement project budgeting	CIP-funded projects should include adequate consideration of trees and planter space, including the construction of planters and pavement to support healthy tree development.	Number of trees planted annually
MO3.2	Establish funding relationships to stormwater utility charges	Include funding for tree planting in related CIP projects and secure non-General Fund program funding wherever possible.	Gallons of stormwater intercepted by trees and tree canopy
MO3.3	Plan for regular urban forestry projects	Regular tree planting and replacement will help the city keep pace with development and tree removal.	Number of trees planted annually
MO Strategy 4: Establish a tree bank or fund			
MO4.1	Establish a tree in-lieu fund	A tree in-lieu fund is a mechanism which allows applicants to pay fees in-lieu of replacement planting or maintenance when tree removal and replacement on site is not a reasonable option.	Dollars in tree bank or fund
MO4.2	Identify additional tree funding sources	Examples include appraisal fees for trees damaged in vehicular accidents, fines for malicious damage to public trees, charitable contributions, and in-memorial donations.	Dollars in tree bank or fund

Community Collaboration and Engagement			
Goal: Build stronger community engagement and public participation in forest stewardship.			
Action ID	Action Short Name	Action Description	KPIs
CCE Strategy 1: Formalize relationships with organizations that share urban forest sustainability objectives			
CCE1.1	Partner with nonprofits and community groups for tree planting	Formal relationships with other nonprofits and community groups will promote volunteerism and alignment of efforts with the city and the community. The city is unable to sponsor volunteer efforts in parks but can promote those of partner organizations.	Number of partner organizations involved
CCE Strategy 2: Encourage tree planting and maintenance on private property			
CCE2.1	Conduct public outreach and education	Develop outreach materials that communicate critical information about the community's urban forest,	Number of mailers sent,

	around tree preservation ordinance	how new regulations will protect trees, and how applicants can successfully submit a permit for tree removal and replacement.	and events conducted
CCE Strategy 3: Establish heritage tree designation			
CCE3.1	Develop a definition for heritage trees	Develop a definition for heritage tree within the municipal code which give the community an opportunity to recognize and preserve trees that provide benefits beyond the ecosystem; including cultural and historic benefits.	Number of trees designated as heritage trees
CCE3.2	Develop a historic tree registry	A historic tree registry will catalogue, celebrate, and educate about tree stewardship and the value of older and larger trees.	
CCE Strategy 4: Establish an urban forestry advisory board			
CCE4.1	Recruit urban forestry and environmental professionals for urban forestry advisory board	The urban forestry advisory board should consist of people with knowledge and experience in urban forestry, tree management, volunteer engagement, and public outreach.	Number of qualified applicants
CCE4.2	Develop an annual board report	The report should consist of an update on urban forestry activities and services the urban forestry advisory board has performed, including the number of trees pruned or planted, and educational materials provided.	Number of tree board meetings annually
CCE4.3	Identify urban forestry awards or grants	Urban forestry advisory board member should be instrumental in finding award and grant applications and advising staff on application content and strategy.	Amount of funding or awards acquired

Implementation

The City of Gig Harbor will coordinate to ensure the UFMP is implemented to meet the desired outcomes through ongoing oversight. Key activities of relevant departments include:

- **City Council:** Council can encourage improvements to the urban forest by requesting from an annual urban forest report from staff which details UFMP implementation. Councilmembers can allocate funding for UFMP implementation, including staff resources; they can also support community events like neighborhood tree planting and educational workshops.
- **Advisory Boards (Parks Commission, Planning Commission, Design Review Board):** These advisory boards can work with city staff to develop educational

materials for developers, update municipal codes and policies, and propose public tree care policies.

- **Administration:** Manages the city's daily business, supervises all city departments and offices, and carries out Council's policies by directing city staff priorities. Can advocate for sustained funding for UFMP implementation, staff resources, and ongoing UFMP updates and reporting.
- **Public Works Department:** This department is the maintenance group for city-owned trees and can carry out the specific leadership and maintenance actions for publicly-owned trees. The Director can also establish policies regarding the care and maintenance of publicly-owned trees.
 - o **Operations & Maintenance Division:** This division can obtain and maintain Tree City USA status with the National Arbor Day Foundation. This division would also be the home of any staff with ISA certifications, who would be responsible for documenting tree work activities. These staff will supply important metrics on tree maintenance activity.
 - o **Parks Division:** Can conduct outreach to strategic partners to develop a robust volunteer-led tree planting program.
- **Community Development Department:** can provide leadership for urban forest sustainability and collect urban forestry data across the city. Staff can also recommendations for improving municipal codes based on community feedback and developer relationships. This department will track UFMP goals, strategies, and actions and provide city council and advisory boards with status reports on UFMP implementation.
 - o **Planning Division:** Planners can provide leadership for the city's understanding of the entire urban forest, and introduce remote sensed data (e.g., canopy analysis, critical areas, ecosystem services) into urban forestry planning discussions. Planners can integrate urban forest management concepts into other planning activities. Planning technicians can consolidate information from customer calls, develop summary statistics, and influence the development of appropriate public education and outreach materials.
 - o **Code Compliance:** Can collect statistics on tree-specific code-compliance issues and summarize information to improve municipal code and develop educational materials.

Quick Wins

There are a number of actions which can be reasonably accomplished within the next five years, or through non-project regulatory changes:

Focus Area	Action ID	Action Short Name
Urban Forest Sustainability	UFS3.1	Develop urban tree canopy goal
Urban Forest Sustainability	UFS4.2	Update tree preservation ordinance
Urban Forest Sustainability	UFS4.4	Set a replacement ratio of 3:1 for trees removed in natural and preservation areas
Municipal Operations	MO1.1	Draft annual work plans for UFMP

Municipal Operations	MO1.2	Establish and convene an urban forestry work group
Community Collaboration & Engagement	CCE1.2	Identify additional tree funding sources
Community Collaboration & Engagement	CCE2.1	Partner with nonprofits and community groups for tree planting
Community Collaboration & Engagement	CCE3.1	Conduct public outreach and education around tree preservation ordinance
Community Collaboration & Engagement	CCE4.1	Develop a definition for heritage trees
Community Collaboration & Engagement	CCE5.1	Recruit urban forestry and environmental professionals
Community Collaboration & Engagement	CCE5.2	Develop an annual board report
Community Collaboration & Engagement	CCE5.3	Identify urban forestry awards and grants

Please do not hesitate to reach out with any questions about the plan or planning process.

City of Gig Harbor

Urban Forestry Management Plan



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Darrin Filand, Design Review Board Chair
Jon Ashlock, Design Review Board member

Puyallup Tribe

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Acronyms & Key Terms

Arborist	A professional with an International Society of Arboriculture Certified Arborist qualification, Tree Risk Assessment qualification, or similar equivalent certification or qualification.
Diameter Standard Height (DSH)	The diameter of the trunk of a tree measured at a point 4.5 feet above grade. This forestry standard measurement is used for established and mature trees.
Ecosystem Benefits	Infrastructure and health services provided by natural systems such as soil, water, and vegetation. These services are not typically quantified; the benefits within this report were calculated using the i-Tree modeling software.
Forester	A professional who practices forestry or, the science and profession of managing forests including but not limited to ecological restoration, extraction of raw material, outdoor recreation, conservation, hunting, and aesthetics.
Full Time Equivalent (FTE)	A unit of measurement that indicates the workload of an employed person. For the City of Gig Harbor 1.0 FTE is equivalent to 40 hours per week.
Hard Surface	An impermeable surface, a permeable pavement, or a vegetated roof.
Indicators of Sustainable Forest Management	An evaluation method adapted from the 2011 article by Kenney, et. Al. published in <i>Arboriculture & Urban Forestry</i> . The method includes a set of criteria and indicators for measuring performance.
Land Use	Land use is a designation by the city of the type or use permitted within a particular parcel or district within the Comprehensive Plan. This is distinct from zoning which has specific performance standards.
Park Trees	Trees located within city-owned parks.
Priority Planting Areas	Those areas which are recommended as high priority for tree planting based on the priority planting analysis. The priority planting analysis includes a number of variables including stormwater infrastructure, heat island effect, soil erosion, and social equity variables such as income, population density, and racial makeup.

Public Trees	Trees located on city-owned property and within the public right-of-way.
Street Trees	Trees located within the public right-of-way.
Tree Canopy Cover	A percentage-based measurement of the amount of land area covered by the leafy canopy of trees during the growing season. Tree canopy cover is determined through remote sensing and aerial imagery.
Urban Growth Area (UGA)	A regional boundary which is set to control urban sprawl. Those parcels designated within the UGA are intended to be annexed by the city over time.
Urban Forestry Management Plan (UFMP)	A long-range planning document which evaluates the existing conditions of the urban forest, and recommends improvements for policy, management, and operations to sustain and improve the urban forest resource over time.
Urban Tree Canopy Analysis (UTC)	An analysis of tree canopy cover within the city and UGA boundaries between 2017 and 2021. The assessment was completed using the most recent USDA 1-meter resolution National Agriculture Imagery Program imagery and geographic information systems data layers.

Executive Summary

Gig Harbor's Urban Forestry Management Plan (UFMP) was developed with robust geographic systems analysis, an urban tree canopy (UTC) assessment, community feedback, regional best practices, and feedback from city staff and regional partners.

Callouts like this are utilized throughout the plan to highlight special findings and recommended actions.

Urban Tree Canopy Assessment

The UTC assessment was completed which identified 40.7% tree canopy cover within the city limits and a potential to increase canopy to 64% (Table 1.)

Table 1: Benchmark measures for urban forest management

Gig Harbor	
Acres	4,009
Park Trees	Unknown
Street Trees	2,537 trees
Land Cover	
Tree Canopy	40.7%
Grass & Vegetation	17.1%
Hard Surfaces	30.3%
Bare Soils	6.5%
Open Water	5.4%
Potential Tree Canopy	
Maximum Potential Canopy Cover	64%
High Priority Planting Acres	393 acres
Investment	
Human Population	12,484
Tree Care Per Capita	\$1.60

City Staff & Partner Interviews

Interviews were conducted with key city staff and partners. Challenges and opportunities for a sustainable urban forest discovered through this process are outlined below:

Table 2: Existing challenges and opportunities

Urban Forest Sustainability	
Challenge	The city has an incomplete tree inventory, which limits managers' ability to improve the quality and condition of the public tree resource.
Opportunities	In 2022, an assessment of tree canopy and other land cover revealed that the city has an estimated tree canopy cover of nearly 41%, with the potential to support an average of 64% canopy cover. Formal planting plans that set annual quotas for tree plantings can help expand tree canopy cover. Increased protections for trees on private property through revisions to the tree ordinance and development code, to preserve existing trees and tree canopy.
Efficiency of Municipal Operations	
Challenges	Tree work is primarily reactive and does not include annual inspections of trees to reduce risk to public safety. The maintenance of city owned trees is not well documented. There is no standardized information collected or reported about public rights-of-way trees or city-managed properties. Current funding levels can only support reactive tree care.
Opportunities	Staff are trained for tree work and adequately equipped. The city has one ISA certified arborist on Staff.
Community Collaboration and Engagement	
Challenge	The community has limited opportunities to get involved in urban forest management. There is no Tree Board or other basic pathway for community collaboration.

Opportunities	13 community groups and non-profits have missions that are aligned with urban forest management goals. Expanded education and awareness of the benefits of trees in the community. There is community support for increasing funding for urban forestry and community education.
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Community Engagement

The city distributed a community survey to understand Gig Harbor's community values around the urban forest. The survey was advertised on the city's web page and 4,941 postcards were mailed to residential and business addresses within city limits and the urban growth area (UGA), and there were 437 responses.

The community survey results demonstrate that survey respondents value trees mainly for their aesthetic value. The community has clear concerns about the loss of canopy from development but are generally satisfied with how existing trees on public property are maintained. Most respondents are supportive of adding dedicated urban forestry staff but have reservations about funding urban forestry through property tax assessments. Many respondents were unaware that the city had tree preservation regulations, highlighting that this could be an area of public outreach and education.

Strategies & Actions At-A-Glance

The following tables introduce goals, strategies, and key actions for the three UFMP focus areas. For a complete list of all actions, see the Strategies & Actions Matrix, starting on page 27.

Urban Forest Sustainability		
Goal	Strategies	Key Actions
Maintain existing canopy and increase canopy cover to 45% over the next 10 years.	• Collect and maintain a functional database about the urban forest. • Manage tree population species, age distribution, and density. • Adopt an overall canopy goal. • Increase overall canopy coverage • Plan suitable trees and schedule replacement of unsuitable trees. • Include ecosystem services of trees in long range planning.	• UFS1.1: Complete a comprehensive forest inventory • UFS2.1: Identify mature/over-mature trees • UFS4.1: Maintain and increase tree canopy cover • UFS4.2: Update tree preservation ordinance

Municipal Operations		
Goal	Strategies	Key Actions
Develop policies that promote routine inspection and formalize city tree management strategies.	• Maintain the UFMP. • Staff and train appropriately for urban forest management. • Establish trees as infrastructure. • Reduce forestry waste through a wood reutilization program.	• MO1.1: Draft annual work plans for UFMP implementation • MO2.2: Create a dedicated urban forester/arborist position • MO3.2: Establish funding relationships to stormwater utility charges
Community Collaboration & Engagement		
Goal	Strategies	Key Actions
Build stronger community engagement and public participation in forest stewardship.	• Establish a tree bank or fund. • Formalize relationships with organizations that share urban forest sustainability objectives. • Encourage tree planting and maintenance on private property. • Establish heritage tree designation. • Establish an urban forestry advisory board.	• CCE1.1: Establish a tree in-lieu fund • CCE4.1: Develop a definition for heritage trees • CCE5.1: Recruit urban forestry and environmental professionals

Implementation

Engagement with the UFMP (plan implementation) will require referencing the plan annually for operations and actions taken by the city. The Plan provides direction and vision over the next twenty years. The long-range vision will be realized by adapting the Plan with a five-year cyclical review and adjustments to annual operational actions. In addition, the city should be presenting a state of the urban forest report annually and include periodic community surveys to stay aligned with the community vision and expectations.

1 | Urban Forestry Concepts

The development of an UFMP requires building healthy relationships between trees in the community and the people who live there. Sustainable forest management can mitigate the impacts of development and other aspects of human life on the surrounding forests. Specific objectives presented in this plan align with the following core values and principles:

- Proactively manage trees by setting goals and monitoring key performance indicators.
- Promote species diversity and suitable age structure in the urban forest.
- Promote tree health and safety by applying the best available science.
- Ensure that the trees are replaced when there is mortality due to weather, pest infestations, injury, utility repairs, utility work, or construction displacement.
- Encourage community members to respect and value the urban forest.

1.1 History of Urban Forest Planning

Gig Harbor has a history defined by its natural resources, water, and trees. The trees, local forests, and native vegetation in Gig Harbor are characterized by a tree population of Douglas-fir (*Pseudotsuga menziesii*), Western red-cedar (*Thuja plicata*), Pacific madrone (*Arbutus menziesii*), and others. Today the urban forest in Gig Harbor is a patchwork of remnant forests with most of the city having been logged and developed since European settlement. The city provides residents with over 179 acres in 31 parks and approximately 16 miles of public trails. The largest park is McCormick Forest Park (24 Acres), and the longest trail is Cushman trail (6.2 miles) which is paved and ADA accessible. The Cushman trail runs along a utility corridor and is bordered by many large trees and understory vegetation. The trail and park system provides access to robust natural areas for recreation and forest bathing opportunities away from the most urbanized areas of Gig Harbor.

The city's most recent urban forestry actions are derived from the updated Parks Recreation and Open Space (PROS) plan (2022). The *Natural Areas* section of the PROS plan includes a policy recommendation that the city prepare a citywide UFMP. The PROS states that an UFMP would provide a long-range, strategic framework to assess a range of urban forest policy, educational and management goals. The plan would serve as a tool to improve the city's urban tree management and stewardship in a coordinated, cooperative approach with city departments, program partners, community advocates, and private landowners.

1.2 Benefits of The Forest

Urban forests play an important role in climate change mitigation and adaptation. Active stewardship of a community's forestry assets can strengthen local resilience to climate change while creating more sustainable and desirable places to live. Projections for climate change suggest that Washington will have increased temperatures and decreased precipitation during future growing seasons (WA DNR, 2020). Trees native to

the Pacific Northwest can tolerate infrequent years of high temperatures and drought, but when summer extremes become more frequent, many trees will suffer. All urban forests offer some common environmental, economic, and social benefits:



Water quality: Urban trees help manage stormwater runoff volumes, peak stream flows, and flooding incidents. Strategic tree planting lessens the need for stormwater management facilities and the cost of stormwater treatment.

Transpiration: Trees lose water vapor from their leaves cooling the surrounding area. Temperature differences up to 9°F (5°C) have been observed between city centers and more suburban areas (Akbari, et al., 1997).

Wind reduction: Trees reduce wind speeds by up to 50% and influence the movement of air and pollutants along streets and out of urban canyons.



Sound reduction: Tree canopy can reduce the reverberation of sound from traffic and other urban sources.

Airborne particulate interception: Trees protect and improve air quality by intercepting particulate matter (PM₁₀) such as dust, ash, pollen, and smoke. Particles can stick to leaves within the tree canopy where they are eventually washed to the ground and incorporated back into the soil.

VOC absorption: Trees and forests absorb harmful gaseous pollutants like ozone (O₃), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and more volatile organic compounds (VOCs).



Direct carbon sequestration: Through growth and the sequestration of CO₂ as wood and foliar biomass.

Indirect carbon sequestration: Trees lower the demand for heating and air conditioning, reducing the emissions associated with electric power generation and natural gas consumption.



Shade dwellings and hard surfaces: Impervious surfaces (hard surfaces) make up 30% of the city's total area (Gig Harbor, 2022). Shade from trees reduces the amount of radiant energy absorbed and stored by impervious surfaces, reducing the urban heat island effect.

Wildlife habitat: Trees and forest lands provide critical habitat for mammals, birds, and fish.

Creation of a sense of place and history: Trees provide a consistent sense of place and comfort (Appleyard, D. 1979, Hester, R. 1990).

Safety: Tree-lined streets reduce vehicle speeds and improve the overall sense of driver safety (Naderi et al. 2008). A street filled with trees shades the sidewalk and provides a buffer between pedestrians and motorists.

Human health: Exposure to nature is correlated with improvements in mental and physical health (Sherer, 2006), including a lower incidence of depressive symptoms (Jennings et al, 2019) and increased capacity and recovery time (Ulrich,1984).



Increased property values: Trees, forests, and landscape are correlated with 10–12% higher home prices (Niemiera,2009). Home values are also increased with shade trees in the adjacent street. On average, street trees added \$8,870 to a sales price and reduced the time on the market by 1.7 days (Donovan and Butry, 2010).

Local commerce: Trees promote more frequent and extended shopping, and a willingness to pay more for goods and parking (Van Buren, 2016). Real estate managers have found they can ask for higher office rents in complexes with well-designed landscapes.

UFS6.1 Account for ecosystem services: Trees provide innumerable ecosystem services and should be accounted for in planning for climate action and stormwater infrastructure.

1.2.1 Ecosystem Benefits

Gig Harbor's tree canopy provides approximately \$697,901 in ecosystem benefits¹ to the community annually (Table 3) ².

Table 3. Annual and total ecosystem benefits provided by Gig Harbor's trees.

Ecosystem Benefits	Annual Ecosystem Benefits		
	Quantity		Value
Air: CO (carbon monoxide) removed	1,088	Lb.	\$119
Air: NO ₂ (nitrogen dioxide) removed	11,164	Lb.	\$390
Air: O ₃ (ozone) removed	63,422	Lb.	\$11,953
Air: SO ₂ (sulfur dioxide) removed	3,650	Lb.	\$23
Air: PM ₁₀ particulate matter (dust, soot, etc.) removed	21,153	Lb.	\$14,707
Carbon sequestered	1,886	tons	\$321,861
Stormwater: reduction in runoff	12,553,006	gals	\$348,848
Total Annual Benefits			\$697,901
Current stored carbon³	56,211	tons	\$9,586,990
Total			\$10,284,891

¹Tree owners can calculate the benefits of trees by using [i-Tree Design](http://www.itreetools.org/design). (www.itreetools.org/design). The model was developed by the USDA Forest Service, Casey Trees and Davey Tree Expert Company to aid in the understanding of the water quality, carbon sequestration, energy savings, air quality, and socio-economic benefits trees provide.

² Ecosystem services for the study area include canopy percentage metrics from UTC land cover data. Those canopy percentages were matched by placing random points within the i-Tree Canopy application. The i-Tree Canopy v7.1 Model quantifies ecosystem services for air quality. i-Tree Canopy estimates tree canopy and other land cover types within selected geography. The model uses the estimated canopy percentage and reports air pollutant removal rates and monetary values for carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), sulfur dioxide (SO₂), and particulate matter (PM) (Hirabayashi 2014). i-Tree Canopy uses U.S. EPA's BenMAP Model estimates of incidence of adverse health effects and monetary value resulting from changes in air pollutants (Hirabayashi 2014; US EPA 2012). The annual air pollutants removed by trees, and the associated monetary value, are calculated using BenMAP multipliers for each county in the United States.

³ Carbon storage is an estimation of the total carbon stored by trees at a given point in time. The estimation is based on a measurement of the total carbon contribution over the life of the tree canopy.

2 | The State of the Urban Forest

Gig Harbor completed a partial inventory of public trees in 2016, with additional data collected in 2018 for a total of 2,537 city-owned street trees. The data shows species diversity heavily weighted toward Douglas fir (31% of the population) and red maple (18%) (Table 4).

Table 4: Species distribution of Gig Harbor's public trees

Scientific Name	Common Name	Count	Percentage
<i>Pseudotsuga menziesii</i>	Douglas fir	778	30.67%
<i>Acer rubrum</i>	Red maple	470	18.53%
<i>Carpinus betulus</i>	European hornbeam	145	5.72%
<i>Quercus palustris</i>	Pin oak	109	4.30%
<i>Pyrus calleryana</i>	Flowering pear	98	3.86%
<i>Fraxinus pennsylvanica</i>	Green ash	88	3.47%
<i>Liriodendron tulipifera</i>	Tulip tree	88	3.47%
<i>Cercidiphyllum japonicum</i>	Katsura tree	86	3.39%
<i>Quercus rubra</i>	Red oak	80	3.15%
<i>Tsuga heterophylla</i>	Western Hemlock	80	3.15%
<i>Acer platanoides L.</i>	Norway maple	72	2.84%
<i>Stewartia pseudocamellia</i>	Japanese stewartia	62	2.44%
<i>Arbutus menziesii</i>	Pacific Madrone	51	2.01%
<i>Liquidambar styraciflua</i>	American sweetgum	36	1.42%
<i>Thuja plicata</i>	Western red cedar	32	1.26%
<i>Fraxinus americana</i>	White ash	31	1.22%
<i>Sorbus aucuparia</i>	European mountain ash	30	1.18%
<i>Cornus kousa</i>	Japanese flowering dogwood	26	1.02%
<i>Crataegus laevigata</i>	English hawthorn	23	0.91%
<i>Acer palmatum</i>	Japanese maple	21	0.83%
Other (<1% each)	Other (<1% each)	131	5.16%
Total		2,537	100%

The City does not routinely update the inventory data however, regular data collection and tracking of urban forest key performance indicators are not currently part of routine operations at the City. Collecting tree information when work is performed can help provide the tools for managers to better understand, prioritize, and make decisions about the tree population.

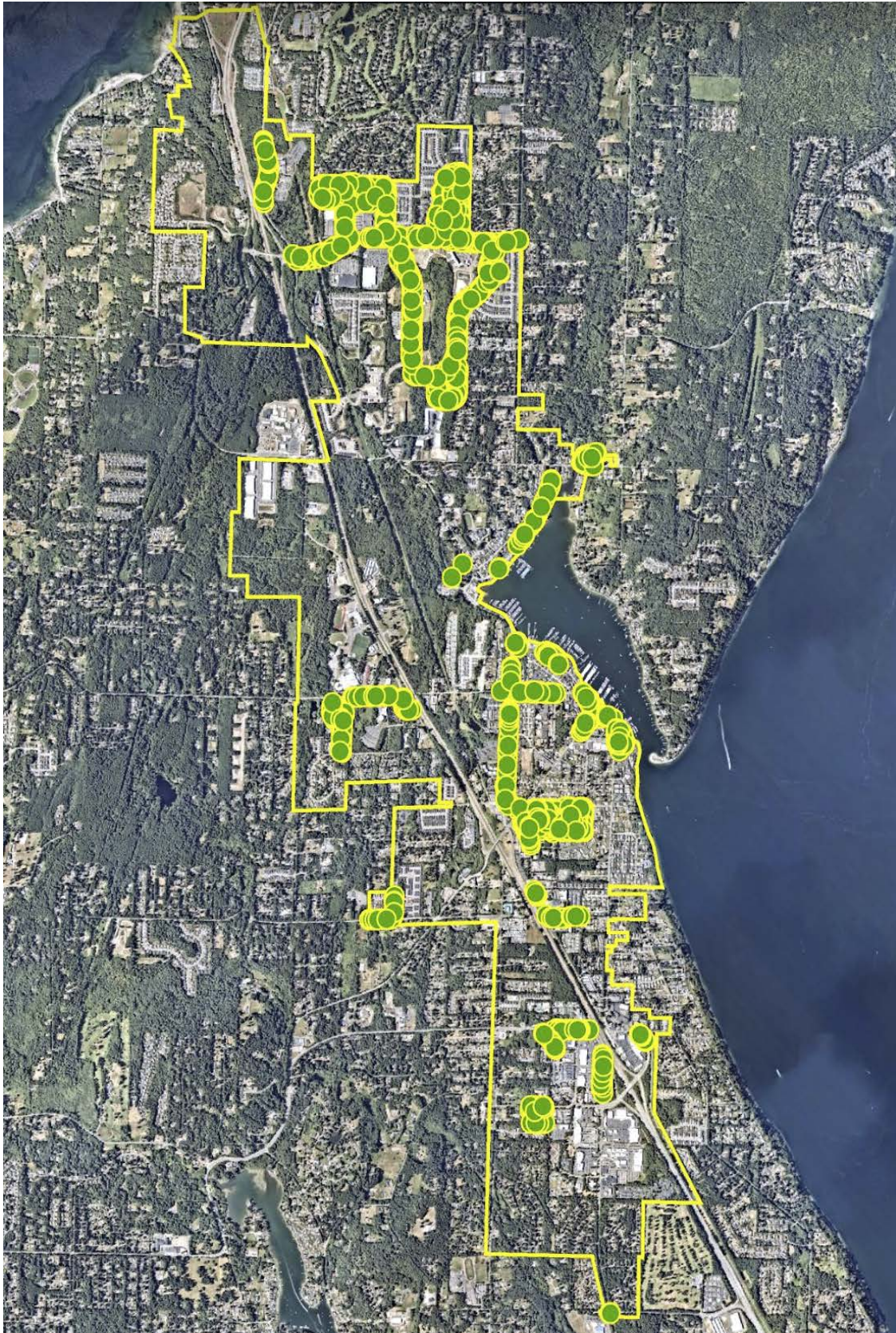


Image 1. Gig Harbor's 2016 inventory of street trees.

2.1 Tree Canopy Assessment

The city performed an Urban Tree Canopy Assessment (UTC) as part of UFMP development. The UTC Assessment examines extent and function of the current urban forest, comparing canopy data within both the city and UGA boundaries from 2017 and 2021. The UTC provides a resource to guide future community forest management efforts. The assessment was completed using USDA 1-meter resolution National Agriculture Imagery Program (NAIP) imagery and geographic information systems (GIS) data layers. The assessment resulted in a GIS map layer that identifies the extent of existing tree canopy.

The city occupies a total of 4,009 acres, and an additional 2,575 acres in the Urban Growth Area. **Analysis demonstrates tree canopy cover is 40.7% (1,630 acres) of the city. The UGA has 48% canopy cover.** The baseline analyses evaluate the total acres according to land cover within the city limits:

- Tree canopy
- Hard surfaces (e.g., roads, sidewalks, parking lots, and buildings)
- Grass and other low-lying vegetation
- Bare soil
- Open water

Table 5. Land cover classification for Gig Harbor, WA city boundary

Gig Harbor WA - Land Cover Classification		
	Acres	Percent
Tree Canopy	1,630	40.7%
Hard Surface	1,215	30.3%
Grass/Low-Lying Vegetation	684	17.1%
Bare Soil	261	6.5%
Open Water	218	5.4%
Total	4,009	100%

UFS3.1 Develop urban tree canopy goal: The city has a goal of 45% tree canopy cover by 2033. Current canopy coverage is 41% and could be as high as 64% if priority planting areas are fully planted.

2.1.1 Tree Canopy By Land Use

Tree canopy distribution by land use provides existing forest location, and where canopy cover is most needed. 3,191 acres of total 4,009 acres within the city limits, can be classified by land use. The remaining 818 uncategorized lands include public rights-of-way (ROW) and other unclassified properties.

Tree Canopy Percent by Land Use

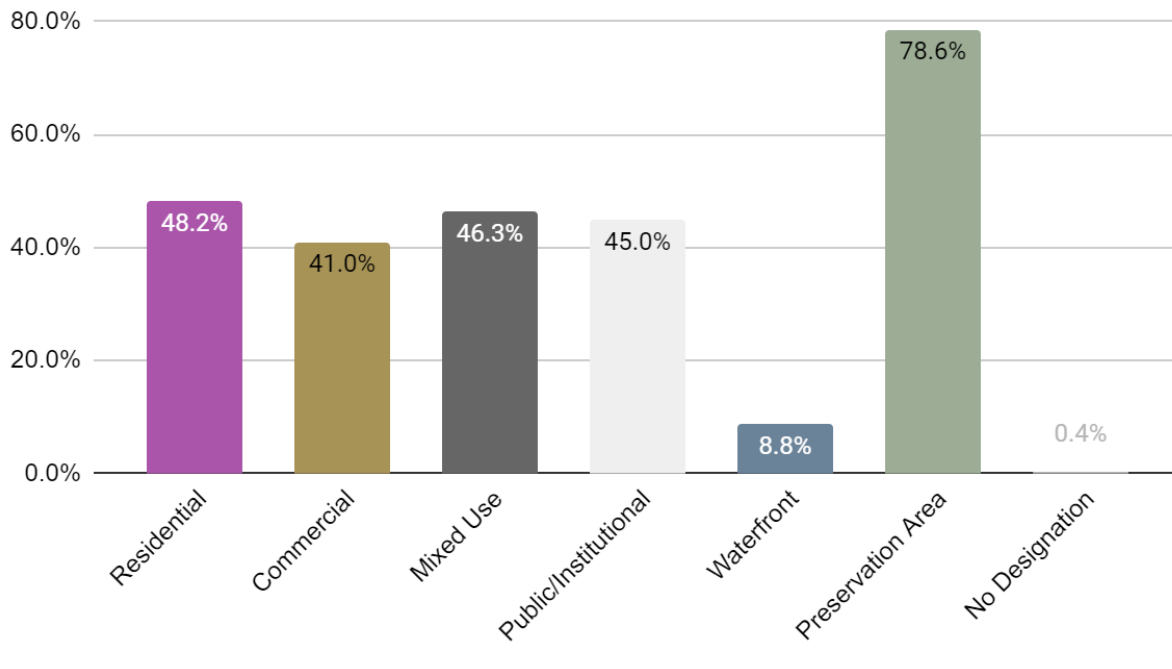


Figure 1. Tree canopy percent by land use

Canopy cover is concentrated within residential areas, preservation areas, and other less-developed areas. The highest percentage of hard surfaces are found in commercial, waterfront, and highly developed areas of the city. Residential areas are the majority of land use (64.8%) and have the second highest tree canopy cover (48.2%). Preservation Areas occupy 13 acres (0.4%) and have the highest canopy cover (78.6%). The least canopy cover is on No Designation (0.4%) and Waterfront (8.8%) areas; however, these land uses are small proportions of the city.

UFS4.1 Maintain and increase tree canopy cover: Adopt a city policy to avoid any net loss to the overall tree canopy.

2.1.2 Community Comparisons

Gig Harbor's 40.7% canopy cover was compared against other recently-assessed Washington communities using [i-Tree Landscape](#). Gig Harbor's canopy cover exceeds that of many communities (Table 5). However, several cities have higher canopy cover.

Table 6. Tree canopy comparisons for context.

Canopy Percentage by Community	
Community	Canopy Percent
Bremerton	49.7%
DuPont	29.0%
Enumclaw	16.6%
Federal Way	38.5%
Gig Harbor	40.7%
Lakewood	22.4%
Olympia	29.7%
Port Orchard	43.7%
Puyallup	26.3%
Shelton	31.2%
Tacoma	20.1%
University Place	25.1%

Research has noted that canopy percentages of 40–60% are attainable in this region based on its climate patterns and ecological ability to support different kinds of trees (Leahy, American Forests, 2017). However, this estimation does not account for anthropogenic factors such as development. **Increased canopy cover can be accomplished through tree preservation and maintenance efforts, in addition to tree planting.**

2.1.3 Urban Tree Canopy Change Assessment

Table 7. Tree canopy cover change, 2017-2021

Study Area	Total Acres	Canopy Acres, 2017	Canopy Percent, 2017	Canopy Acres, 2021	Canopy Percent, 2021	Change in Acres, 2017-2021	Percent Change	Absolute Change
Citywide	4,009	1,622	40.5%	1,630	40.7%	8	0.5%	0.2%
Public land	925	319	34.5%	335	36.2%	16	5.1%	1.7%
Private land	3,083	1,302	42.2%	1,295	42.0%	-8	-0.6%	-0.3%
Parks	179	113	63.1%	116	64.7%	3	2.4%	1.5%

The UTC reveals an increase of approximately 8 acres of canopy cover between 2017 and 2021. The 8-acre change equates to a 0.5% relative increase to the city's 2017 canopy cover (1,622 acres), and a 0.2% absolute increase relative to the city's total area

(4,009 acres). City-owned land had a greater increase in canopy of approximately 5% (16 acres), concentrated in park areas (2.4% increase), which demonstrates the city is making positive impacts on city-managed land. However, private land had a decrease of 8 acres (-0.6% decrease) canopy cover over the 4-year UTC comparison period.

UFS3.2 Conduct UTC every 5 years: Conducting a UTC regularly will allow the city to analyze and correct for any canopy loss that detracts from overall canopy goals.

2.2 Priority Planting Analysis & the Changing Canopy

The UTC identifies priority planting areas as those areas with bare soil or low-lying vegetation. The identified areas are ranked based on benefits that additional tree canopy coverage will provide. Factors considered for the priority planting analysis:

1. **Environmental factors:** This factor includes proximity to hard surface, soil permeability, tree canopy proximity, slope, soil erosion factors, and land surface temperature; areas where trees are useful for absorbing stormwater and mitigating urban heat island effect.
2. **Housing stock:** This factor includes neighborhood infrastructure and property values, building value, proportion of single-family homes, and proportion of rental properties; areas where neighborhood infrastructure and property values can benefit from additional trees.
3. **Population:** This factor includes population density, proportion of population living in poverty, educational attainment, and race/ethnicity; areas where health and income disparities, vulnerability to heat stress, areas where tree-related energy savings, cleaner air and water are important for community health.

The priority planting analysis identifies 885 acres of plantable spaces in Gig Harbor. Approximately 311 acres are prioritized as high or very high priority based on environmental, housing, and population factors. **Planting trees in all priority planting areas could increase canopy cover from 41% (1,630) to 64% (2,515 acres) across public and private property.**

UFS4.3 Increase canopy through priority planting efforts: Utilize urban tree canopy data (GIS) to identify areas where tree planting can enhance overall canopy cover, improve stormwater management and/or protect existing natural resources.

Table 8. Available planting areas in Gig Harbor for composite priorities

Priority Rank	Acres	Percent
Very Low	21	2%
Low	313	35%
Moderate	240	27%
High	162	18%
Very High	149	17%

The UTC identified tree planting opportunities in Gig Harbor so the city can prioritize tree planting efforts that optimize community benefit. **As the city sets goals to become more climate resilient, replanting to compensate for canopy loss is essential, and the city should develop a tree planting program.** This type of program requires relationships with local nurseries to ensure trees are available as it can take a number of years to grow nursery stock. Other possible partners for sourcing trees could include neighboring cities, tribal leaderships, or conservation districts.

UFS5.1 Develop a tree planting and replacement plan: Species demonstrating poor performance should not be planted in the future. The planting and replacement plan should include phased removals and replacement of existing poor-performing species.

The Tree Placement Analysis classified possible planting areas across Gig Harbor on public and private property. Sites are identified using aerial imagery, and the spacing between trees is based on planting in a landscape setting. The analysis identified 37,110 potential tree planting sites totaling 885 acres, of which 78% were on private property and 17% were appropriate for large trees.

Table 9. Tree placement by land ownership.

Gig Harbor Tree Placement by Land Ownership		
Public Land	8,104 sites	22%
Private Land	29,006 sites	78%
Total	37,110 sites	100%

262 acres are identified as future development with 28 distinct parcels at risk of deforestation, an estimated 106.94 acres of canopy cover. Reductions in overall tree canopy must include tree preservation and planting strategies to counteract anthropogenic factors.

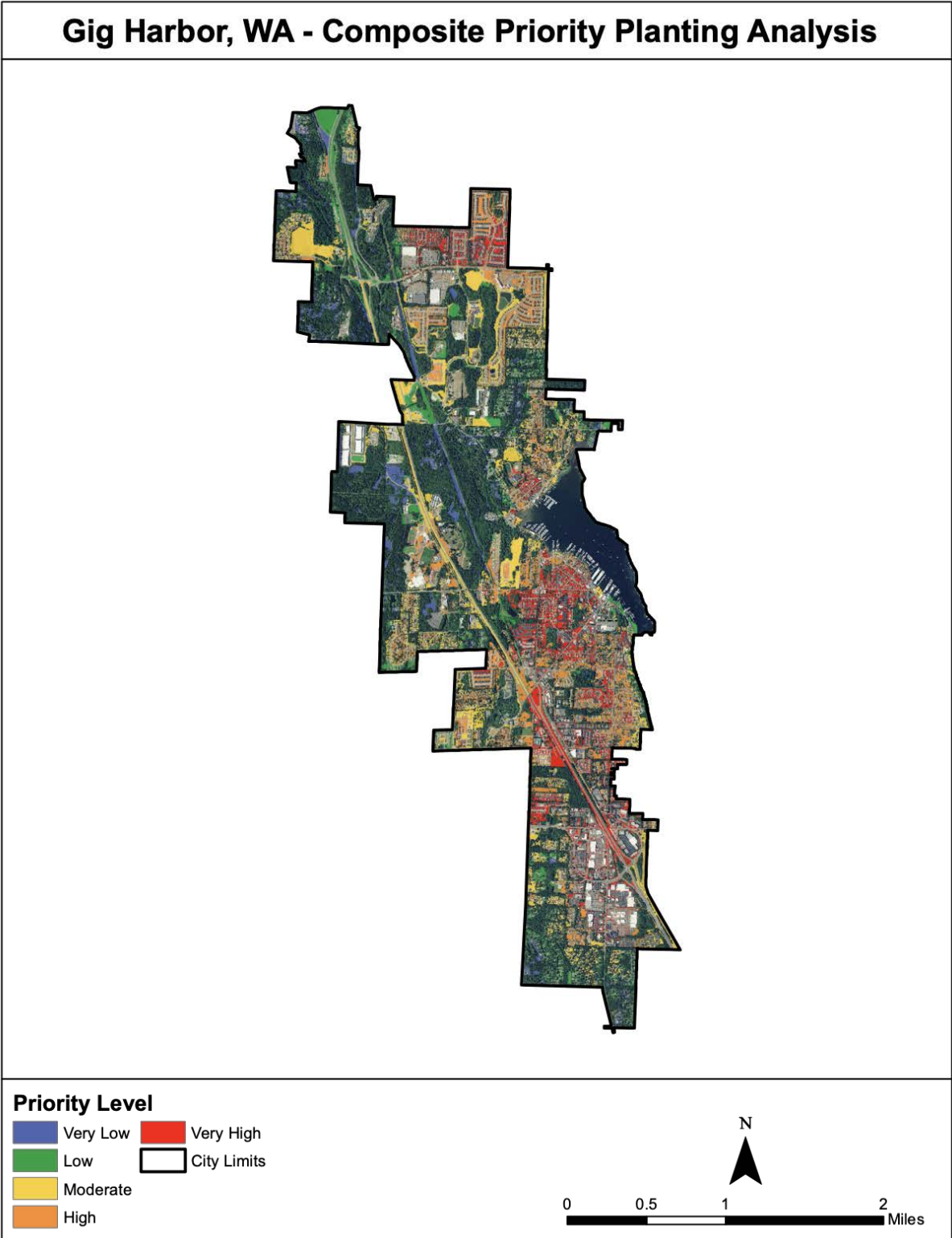


Image 2. Composite priority planting areas for stormwater management, urban heat island effect, and social equity.

2.3 Urban Forest Management

The UFMP development process began with fourteen (14) individual and group interviews with city staff, city council (council), and advisory board members to learn about their roles in urban forest management. The existing organizational structure reveals key short-term opportunities to improve urban forest management. Additional impacts may be derived from planning, code enforcement and community relationships.

- **City Council** recognizes the impact urban forestry can have in community building.
- **Advisory Boards (Design Review Board, Planning Commission, Parks Commission)** expressed a desire to conduct more public education about tree selection and planting as well as full-time staff dedicated to public tree care.
- **City Administrator** recognizes the challenges presented by inadequate staffing.
- **Public Works staff** expressed that there is no formal tree planting program, and about 30 trees are planted per year to replace trees lost in the right-of-way.
- **Community Development staff** is concerned that the city does not have a variety of strategies or requirements to enhance tree retention, as many trees only survive in development buffers.
- **Puyallup Tribe** typically engages with the city with SEPA review. Three representatives from the Puyallup Tribe were interviewed as part of UFMP development. The Puyallup Tribe values the urban forest as part of protecting cultural practices and traditional fishing resources. The Puyallup Tribe would like to have more opportunities to partner with the city on planning and conservation efforts on those projects which do not necessarily trigger SEPA review.

2.4 Tree Planting & Maintenance

2.4.1 Service Levels

The current standard of care and management of Gig Harbor's parks and forests are performed by a combination of Public Works Department staff and contracted professional services, typically on a reactive basis.

There are currently no staff with primary tree management and care responsibilities. There is one International Society Of Arboriculture (ISA) Certified Arborist on staff, currently classified as a Maintenance Technician. The Maintenance Technician spends 8-10 hours per month completing tree maintenance activities, equivalent to **0.06 FTE**.

The absence of full-time staff dedicated to Gig Harbor's park and street trees is one of the biggest hurdles the Public Works Department has identified in order to effectively manage its urban forest. **A well-staffed department will be able to provide this**

maintenance and oversight as well as guidance from project to project. This will help to ensure that overarching environmental sustainability goals are successful.

MO2.2 Create a dedicated urban forester/arborist position: A dedicated arborist position can advise and direct on urban forestry issues and implement the UFMP

2.4.2 Equipment and Tools

The Public Works department maintains a complete system for one crew to conduct routine tree care and maintenance activity. The system includes a chip truck with a large capacity chipper, a lift truck, common arborist tools, and safety gear. When tree work requires tree climbing or specialized equipment, the city will rent equipment, or contract tree maintenance services. In discussions with Public Works staff, access to equipment was not a limiting factor for providing appropriate tree maintenance; however, the associated staffing to complete necessary work is a challenge.

2.5 Urban Forestry Funding

Best management practices dictate that urban forestry programs have an allocated annual budget. The city has averaged approximately \$20,000 per year for tree maintenance needs and replanting however, no annual budget is specifically allocated for tree maintenance and planting. Tree-related funding is currently a lower priority than other Public Works projects such as roads and stormwater facilities.

The city has adequate equipment to perform tree work however, dedicated staffing for tree care is a constraint to the city's level of service. Limited staffing often correlates to limited budget allocations for urban forestry, and it is recommended that city funding for urban forestry be increased. 2,537 trees are identified by the city inventory with an estimated 37,110 potential planting locations. **A complete tree inventory and resource analysis can demonstrate the need for a systematic tree care program to Council, justifying an allocated annual budget for maintenance and annual tree planting operations.**

MO Strategy 3, Establish trees as infrastructure: A complete tree inventory, coupled with the inclusion of funding for trees into capital improvement budgets, stormwater infrastructure, and regular planning for urban forestry projects will develop an appropriate budget for urban forestry.

2.6 Regulations and Policies

2.6.1 Federal and State Laws

The two most relevant laws that directly influence the management of urban forests and land use are the Washington State Environmental Policy Act (SEPA, 1971) and the Washington State Growth Management Act (1990). Washington State has recognized the importance of sustainable urban forests with the Evergreen Communities Act (2008, rev 2021). The Evergreen Communities Act provides pathways for government grants associated with urban forestry while recognizing those communities that develop excellent urban forestry programs. In addition to these important pieces of legislation, sustaining urban forests also honors the Migratory Bird Treaty (1918) and the Endangered Species Act (1973).

2.6.2 Local Plans & Policies

[The City of Gig Harbor Comprehensive Plan](#) and the [2022 Parks, Recreation and Open Space Plan \(PROS Plan\)](#) provide an overarching mandate for urban forest management activity and long-range objectives within the UFMP.

Comprehensive Plan (2018)

The Comprehensive Plan coordinates planning objectives with the city's vision for the future. The plan process incorporates extensive public outreach and integrates residents' preferences planning policy. The Comprehensive Plan recognizes trees as community assets. The Comprehensive Plan has explicit policies regarding the preservation of trees and existing vegetation during construction of new roads, lot layouts, and building sites. The city could expand upon this policy by tracking potential restoration sites. The Comprehensive Plan is currently undergoing a required Periodic Update, which will be completed by December 31, 2024.

Parks Recreation and Open Space (PROS) Plan (2022)

The PROS Plan is a six-year guide and strategic plan for managing and enhancing park and recreation services in Gig Harbor. It establishes policies for providing high-quality, community-driven parks, trails, open spaces, and recreational opportunities. The Pros Plan proposes updates to service standards for parks and trails and addresses goals, objectives, and other management considerations for continued quality recreation opportunities. The PROS Plan includes inventories and evaluations of existing park and recreation areas, assess the needs for acquisition, site development, and operations, and offers specific policies and recommendations to achieve the community's goals.

Municipal Tree Code

The City of Gig Harbor reviews development proposals and conducts code enforcement through the Gig Harbor Municipal Code (GHMC) Chapters 8, 17, and 19. However, it is

recommended the city update and further expand these codes to include provisions for the best available science, and community values.

UFS4.2 Update tree preservation ordinance: *The city should revise its tree regulations, and related development regulations, based on current best management practices discovered during UFMP development.*

Recommended inclusions for Gig Harbor's municipal tree code:

- Provide clearly defined terms (GHMC Chapter 17.04 Definitions) that reduce ambiguity and help ensure community compliance.
 - Define public and private trees, establish maintenance responsibility, and extend protection, preservation, and replacement requirements to all trees.
 - Align tree care standards providing for American National Standards Institute (ANSI) A300, International Society of Arboriculture (ISA) best management practices, and ISA Arborist Certifications as reference resources or authority.
- Incorporate and reflect community values with a strong introduction (GHMC 17.78.010 Intent).
- Require permits to regulate and monitor tree work such as planting, pruning, and removal.
- Provide requirements for tree protection when it conflicts with development activity or competing community values.
- Balance the need to provide a healthy and abundant tree canopy with the need for construction and development activities.
- Outline clear and actionable repercussions for noncompliance.
- Allow for exceptions in instances where code compliance is unreasonable.

3 | Community Engagement

3.1 Community Outreach

The city distributed a survey to the community to understand and benchmark Gig Harbor's community views on the urban forest. The survey was advertised on the city's web page and 4,941 postcards were sent to addresses within the city limits and the urban growth area (UGA). Survey data was collected online during the month of February and March 2023. The survey closed with 437 responses. The survey did not correct for nonresponse bias where opinions may differ from those who don't respond.

3.1.1 Respondent Profile

The age range of respondents as compared to the US Census age demographics (2022) was higher for those over age 65. Most respondents declared themselves 36 or older (95%). When asked about their relationship with the city's trees, most respondents declared themselves to be residents of Gig Harbor (53%), with small numbers identifying as frequent visitors (9%), donors to urban forestry causes (8%), volunteers (6%), permit applicants (6%), business owners (5%), and people who take care of trees on public property (5%) (Figure 2).

Table 10. Survey respondent age

Demographic	% Population ⁴	% Survey Response
Persons Under 18 years	31.4%	0.46%
Persons 19 to 64 years	43.2%	62.3%
Persons 65 years and over	25.4%	36.81%

⁴ [US Census Bureau \(2022\)](#)

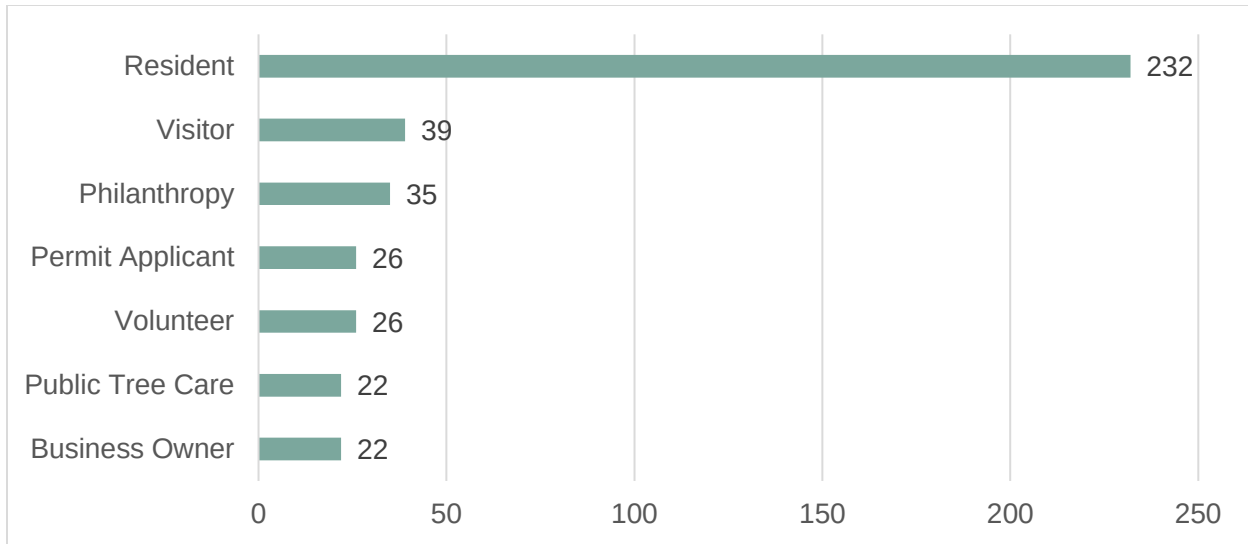


Figure 2. Survey response: “What is your relationship with trees in Gig Harbor? Select all that apply”.

3.1.2 Respondent Value of Trees

The results showed how 83% of respondents *strongly agree* that trees are important to the quality of life in Gig Harbor (Figure 3).

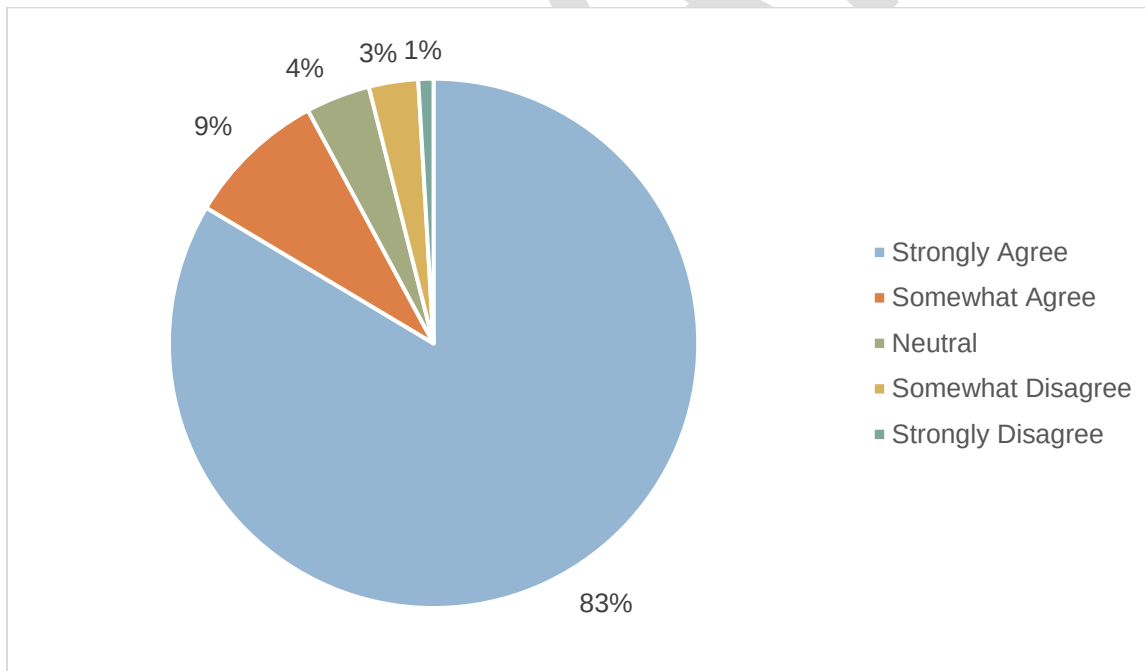


Figure 3. Survey response: “Trees are important to the quality of life in Gig Harbor”.

When asked to pick three most important benefits provided by trees, respondents answered as follows:

- 23% consider trees important for wildlife habitat.

- 19% value them for aesthetic beauty.
- Fewer respondents value environmental services like water quality (4%) and soil stability (9%).

When asked where they are most concerned, respondents answered as follows:

- 26% are concerned about habitat loss.
- 26% also concerned with health trees being removed by development.
- 21% are concerned about canopy loss.
- 10% had concerns about safety hazards.
- <5% concerned about tree debris, views, shade or private property rights.

3.1.3 City Operations & Funding

When asked questions that consider the level of service the community expects from the city, most respondents were *completely satisfied* (34.6%) or *somewhat satisfied* (28.2%) with the maintenance of trees on public property (Figure 4).

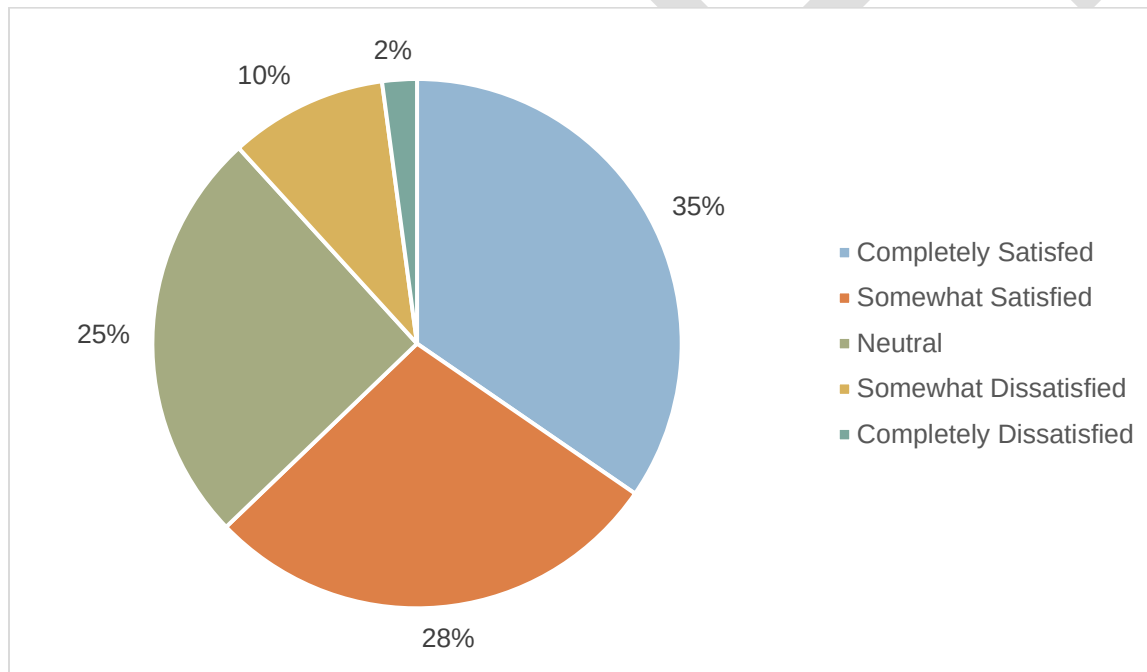


Figure 4. Survey response: “What is your satisfaction with the current level of maintenance for trees on public property?”

When asked how often they see trees with hazards or safety concerns, respondents answered as follows:

- Most respondents (61%) never encounter issues with public trees.
- 9% see sidewalk obstructions on a daily or weekly basis.
- 6% see hazard or safety issues on a daily or weekly basis.

When asked about hiring a city arborist to support the community’s tree issues, respondents were divided:

- 54% are in favor.
- 32% are in favor, with conditions.
- 14% of respondents do not agree with the need for a staff position.

When asked about increasing funding through a property tax assessment, respondents answered as follows:

- 27% are in favor.
- 44% are partially in favor, with conditions.
- 28% of respondents do not agree with a property tax assessment to fund urban forestry.

The PROS plan survey found that most residents are supportive of paying additional taxes to support the city's park system. Three in four residents are willing to pay at least \$4 per month (PROS Plan, 2022).

3.1.4 Tree Regulations & Permitting

56% of all respondents were not aware that the city had tree protection and mitigation regulations (Figure 5). Of those respondents who are aware of tree regulations, 13% had had personal experiences from managing trees on their own property, 12% used the city website, and 19% of respondents learned about tree regulations through social media and news articles.

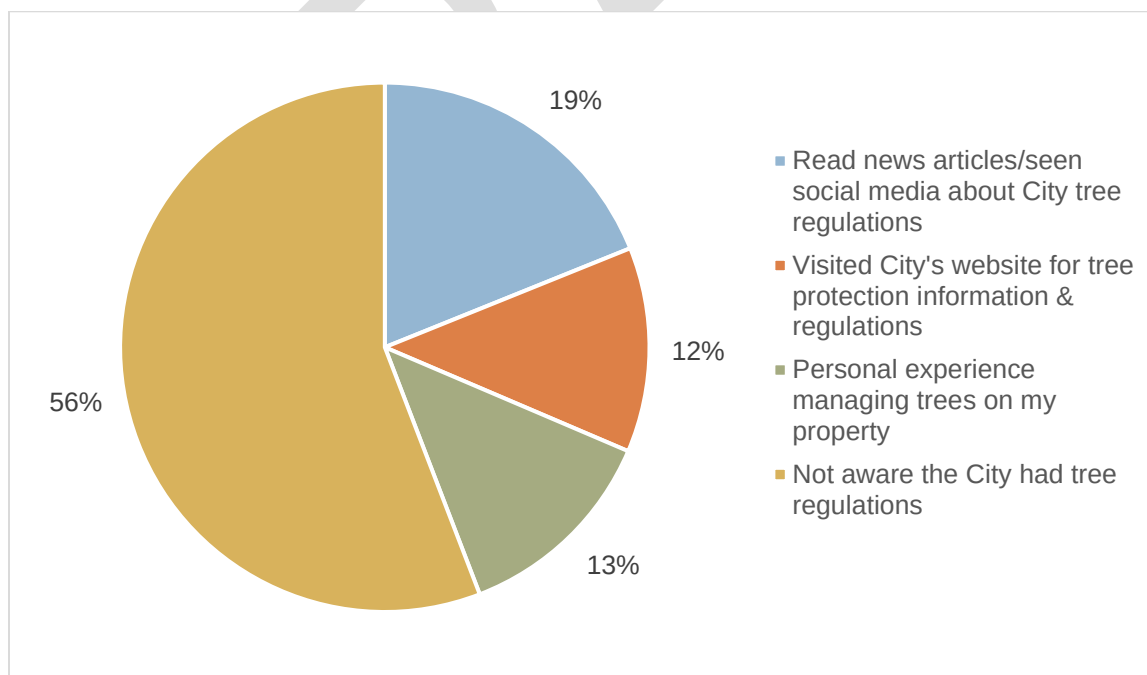


Figure 5. Survey response: “What do you know about the city’s tree regulations for private property?”

CCE2.1 Conduct public outreach & education around tree preservation ordinance: *Develop outreach materials that communicate critical information about the community's urban forest, how new regulations will protect trees, and how applicants can successfully submit a permit for tree removal and replacement.*

Only 13% of respondents have had experience working through tree regulations on their own property however, when asked about the permitting process, respondents answered as follows:

- 55% of this group thought the process was difficult.
- 45% thought it was easy.

When asked if these requirements were *reasonable*, *lenient*, or *strict*, respondents answered as follows:

- 45% of respondents thought the regulations were too strict.
- 20% thought they were too lenient.
- 33% thought they were reasonable.

When asked about how they would like to learn more about tree preservation and City regulations, respondents answered as follows:

- 25% would like website resources.
- 17% would like interpretive displays at trails and parks.
- 16% would like guided walks.
- 13% would like online videos.
- 10% would like informational brochures.
- 8% would like seminars and workshops.

3.2 Tree City USA

The Arbor Day Foundation is the largest nonprofit membership organization dedicated to tree planting and provides the framework necessary for communities to manage and expand their public trees (The Arbor Day Foundation, 2012). Becoming a Tree City provides the City of Gig Harbor with a four-step framework to maintain and grow their tree cover. **The city has 12,484 residents which suggests the city should be allocating at least \$24,968 per year to urban forestry.** This is considered an achievable threshold for Gig Harbor as the city currently estimates spending about \$20,000 per year on urban forestry.

CCE Strategy 4, Establish an urban forestry advisory board: *An urban forestry advisory board is one of the four steps required to attain Tree City status. The advisory board can identify funding sources, conduct outreach, and advise on tree planting and maintenance.*

4 | Goals, Strategies & Actions

Over the next twenty (20) years, Gig Harbor will be able to enhance the management of the urban forest through the implementation of actions recommended in this plan. The long-range strategic goals provided in this plan will address the three components of a sustainable urban forestry program: Urban Forest Sustainability, Municipal Operations and Community Collaboration and Engagement.

Urban Forest Sustainability

Goal: Maintain existing canopy and increase canopy cover to 45% over the next 10 years.

Action ID	Action Short Name	Action Description	KPIs
UFS Strategy 1: Collect and maintain a functional database about the urban forest			
UFS1.1	Complete a comprehensive forest inventory	The inventory should include information such as location, DSH, estimated age, species, condition.	% of city trees with documented tree inspection
UFS1.2	Develop policy to maintain a public tree inventory	Tree information should be collected during any urban forestry or tree work conducted on public trees.	Age of tree inventory data
UFS1.3	Develop a standard tree inspection protocol	A standard tree inspection protocol which will prioritize plant health care needs and requirements and integrating this information into a functional data management system.	Age of tree inventory data
UFS1.5	Develop a relative performance index (RPI)-	The RPI is a composite of tree species performance based on resilience to local climate conditions, drought, pests, and other forestry issues.	% of city trees with RPI calculation
UFS Strategy 2: Manage tree population species, age distribution, and density			
UFS2.1	Identify mature/over-mature trees	For any tree inventory efforts, collect DSH to estimate tree age and understand specific age distribution of coniferous and evergreen populations. Gradually replace those trees which are mature/over-mature.	Average DSH of public trees; species distribution of public trees

UFS2.2	Document tree information when conducting work	Document and track tree species information when performing tree work to understand and identify unsuitable tree species.	RPI
UFS Strategy 3: Adopt an overall canopy goal			
UFS3.1	Develop urban tree canopy goal	The city has a goal of 45% tree canopy cover by 2033. Current canopy coverage is 41% and could be as high as 64% if priority planting areas are fully planted.	% tree canopy cover
UFS3.2	Conduct UTC every 5 years	Conducting an UTC regularly will allow the city to analyze and correct for any canopy loss that detracts from overall canopy goals.	% tree canopy cover
UFS Strategy 4: Increase overall canopy coverage			
UFS4.1	Maintain and increase tree canopy cover	Adopt a city policy to avoid any net loss to the overall tree canopy.	% tree canopy cover
UFS4.2	Update tree preservation ordinance	Revise the city's tree regulations, and related development regulations, based on current best management practices discovered during UFMP development.	Date of ordinance adoption/update
UFS4.3	Increase canopy through priority planting efforts	Utilize urban tree canopy data (GIS) to identify areas where tree planting can enhance overall canopy cover, improve stormwater management and/or protect existing natural resources.	% tree canopy cover
UFS4.4	Set a replacement ratio of 3:1 for trees removed in natural and preservation areas	Preservation areas constitute a smaller portion of the UTC, but are the densest areas of coverage, a progressive replacement ratio for these areas ensures net canopy gain over time.	Number of trees planted
UFS Strategy 5: Plant suitable trees and schedule replacement of unsuitable trees			
UFS5.1	Develop a tree planting and replacement plan	Species demonstrating poor performance should not be planted in the future. The planting and replacement plan should include phased removals and replacement of existing poor-performing species.	RPI
UFS5.2	Update recommended planting lists	Update recommended planting lists public and private use to reflect current best management practices and those	Date of planting list revision

		species which are demonstrated to be most resilient to climate change.	
UFS5.3	Coordinate across the region to develop nursery stock	It can take time to grow nursery stock. As the city phases out certain low-RPI species and updates the recommended planting lists it will be important to work with local nurseries, regional jurisdictions, tribal leaderships and conservation districts to have a supply of appropriate species available.	Species available for planting
UFS Strategy 6: Include ecosystem services of trees in long range planning			
UFS6.1	Account for ecosystem services	Trees provide innumerable ecosystem services and should be accounted for in planning for climate action and stormwater infrastructure.	Ecosystem benefits estimates from i-Tree Eco

Municipal Operations

Goal: Develop policies that promote routine inspection and formalize city tree management strategies.

Action ID	Action Short Name	Action Description	KPIs
MO Strategy 1: Maintain the Urban Forestry Management Plan			
MO1.1	Draft annual work plans for UFMP implementation	Annual work plans for the implementation of specific actions to advance UFMP goals and allow the city to adjust targets as necessary.	Annual work plans
MO1.2	Establish and convene an urban forestry work group	An engaged urban forestry work group can advance UFMP goals and develop annual work plans.	Number of work group meetings
MO1.3	Review and revise the UFMP every 5 years	Regular review and revision of the UFMP will allow the city to align objectives and actions into the annual work plan as well as community values and expectations for the urban forest.	Date of UFMP update
MO Strategy 2: Staff and train appropriately for urban forest management			
MO2.1	Establish protocol for ongoing training	Each city staff person who makes decisions impacting the urban forest should receive annual training specific to their duties. This will strengthen the qualifications of the urban forestry work group and increase their capacity to implement the UFMP.	Number of urban forestry training hours per FTE
MO2.2	Create a dedicated urban forester/arborist position	A dedicated arborist position can advise and direct on urban forestry issues and implement the UFMP.	FTE working in urban forestry
MO Strategy 3: Establish trees as infrastructure			
MO3.1	Include funding for trees and planting sites in capital improvement project budgeting	CIP-funded projects should include adequate consideration of trees and planter space, including the construction of planters and pavement to support healthy tree development.	Number of trees planted annually

MO3.2	Establish funding relationships to stormwater utility charges	Include funding for tree planting in related CIP projects and secure non-General Fund program funding wherever possible.	Gallons of stormwater intercepted by trees and tree canopy
MO3.3	Plan for regular urban forestry projects	Regular tree planting and replacement will help the city keep pace with development and tree removal.	Number of trees planted annually
MO Strategy 4: Establish a tree bank or fund			
MO4.1	Establish a tree in-lieu fund	A tree in-lieu fund is a mechanism which allows applicants to pay fees in-lieu of replacement planting or maintenance when tree removal and replacement on site is not a reasonable option.	Dollars in tree bank or fund
MO4.2	Identify additional tree funding sources	Examples include appraisal fees for trees damaged in vehicular accidents, fines for malicious damage to public trees, charitable contributions, and in-memoriam donations.	Dollars in tree bank or fund

Community Collaboration and Engagement

Goal: Build stronger community engagement and public participation in forest stewardship.

Action ID	Action Short Name	Action Description	KPIs
CCE Strategy 1: Formalize relationships with organizations that share urban forest sustainability objectives			
CCE1.1	Partner with nonprofits and community groups for tree planting	Formal relationships with other nonprofits and community groups will promote volunteerism and alignment of efforts with the city and the community. The city is unable to sponsor volunteer efforts in parks but can promote those of partner organizations.	Number of partner organizations involved
CCE Strategy 2: Encourage tree planting and maintenance on private property			
CCE2.1	Conduct public outreach and education around tree preservation ordinance	Develop outreach materials that communicate critical information about the community's urban forest, how new regulations will protect trees, and how applicants can successfully submit a permit for tree removal and replacement.	Number of mailers sent, and events conducted
CCE Strategy 3: Establish heritage tree designation			
CCE3.1	Develop a definition for heritage trees	Develop a definition for heritage tree within the municipal code which give the community an opportunity to recognize and preserve trees that provide benefits beyond the ecosystem; including cultural and historic benefits.	Number of trees designated as heritage trees
CCE3.2	Develop a historic tree registry	A historic tree registry will catalogue, celebrate, and educate about tree stewardship and the value of older and larger trees.	
CCE Strategy 4: Establish an urban forestry advisory board			
CCE4.1	Recruit urban forestry and environmental professionals for urban forestry advisory board	The urban forestry advisory board should consist of people with knowledge and experience in urban forestry, tree management, volunteer engagement, and public outreach.	Number of qualified applicants

CCE4.2	Develop an annual board report	The report should consist of an update on urban forestry activities and services the urban forestry advisory board has performed, including the number of trees pruned or planted, and educational materials provided.	Number of tree board meetings annually
CCE4.3	Identify urban forestry awards or grants	Urban forestry advisory board member should be instrumental in finding award and grant applications and advising staff on application content and strategy.	Amount of funding or awards acquired

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5 | Implementation & Monitoring

5.1 Oversight & Accountability

The City of Gig Harbor will coordinate to ensure the UFMP is implemented to meet the desired outcomes through ongoing oversight. Key activities of relevant departments include:

- **City Council:** Council can encourage improvements to the urban forest by requesting from an annual urban forest report from staff which details UFMP implementation. Councilmembers can allocate funding for UFMP implementation, including staff resources; they can also support community events like neighborhood tree planting and educational workshops.
- **Advisory Boards (Parks Commission, Planning Commission, Design Review Board):** These advisory boards can work with city staff to develop educational materials for developers, update municipal codes and policies, and propose public tree care policies.
- **Administration:** Manages the city's daily business, supervises all city departments and offices, and carries out Council's policies by directing city staff priorities. Can advocate for sustained funding for UFMP implementation, staff resources, and ongoing UFMP updates and reporting.
- **Public Works Department:** This department is the maintenance group for city-owned trees and can carry out the specific leadership and maintenance actions for publicly-owned trees. The Director can also establish policies regarding the care and maintenance of publicly-owned trees.
 - **Operations & Maintenance Division:** This division can obtain and maintain Tree City USA status with the National Arbor Day Foundation. This division would also be the home of any staff with ISA certifications, who would be responsible for documenting tree work activities. These staff will supply important metrics on tree maintenance activity.
 - **Parks Division:** Can conduct outreach to strategic partners to develop a robust volunteer-led tree planting program.
- **Community Development Department:** can provide leadership for urban forest sustainability and collect urban forestry data across the city. Staff can also recommendations for improving municipal codes based on community feedback and developer relationships. This department will track UFMP goals, strategies, and actions and provide city council and advisory boards with status reports on UFMP implementation.
 - **Planning Division:** Planners can provide leadership for the city's understanding of the entire urban forest, and introduce remote sensed data

(e.g., canopy analysis, critical areas, ecosystem services) into urban forestry planning discussions. Planners can integrate urban forest management concepts into other planning activities. Planning technicians can consolidate information from customer calls, develop summary statistics, and influence the development of appropriate public education and outreach materials.

- o **Code Compliance:** Can collect statistics on tree-specific code-compliance issues and summarize information to improve municipal code and develop educational materials.

5.2 Quick Wins

The following actions can be reasonably accomplished within the next five years, or through non-project regulatory changes.

Focus Area	Action ID	Action Short Name
Urban Forest Sustainability	UFS3.1	Develop urban tree canopy goal
Urban Forest Sustainability	UFS4.2	Update tree preservation ordinance
Urban Forest Sustainability	UFS4.4	Set a replacement ratio of 3:1 for trees removed in natural and preservation areas
Municipal Operations	MO1.1	Draft annual work plans for UFMP
Municipal Operations	MO1.2	Establish and convene an urban forestry work group
Community Collaboration & Engagement	CCE1.2	Identify additional tree funding sources
Community Collaboration & Engagement	CCE2.1	Partner with nonprofits and community groups for tree planting
Community Collaboration & Engagement	CCE3.1	Conduct public outreach and education around tree preservation ordinance
Community Collaboration & Engagement	CCE4.1	Develop a definition for heritage trees
Community Collaboration & Engagement	CCE5.1	Recruit urban forestry and environmental professionals

Community Collaboration & Engagement

CCE5.2

Develop an annual board report

Community Collaboration & Engagement

CCE5.3

Identify urban forestry awards and grants

5.3 State of the Urban Forest Report

Operational engagement with the plan will guide management and planning decisions over the next 20 years. Each year, priority actions will be identified to inform budget and time requirements for urban forest managers. An annual report (State of the Urban Forest) on the progress of priority actions and the UFMP overall should also include the number of trees planted and removed, and any changes to the overall community urban forest (e.g., structure, benefits, and value).

The annual report will serve as a performance report to the Gig Harbor community, an opportunity to highlight the successful achievement of UFMP actions, and a way to inform the community about issues and opportunities to engage. Pertinent urban forestry information can be integrated into other annual reports and used to pursue funding from granting agencies and Tree City USA.

Trends in canopy cover will be evaluated through a routinely updated UTC Assessment providing quantitative metrics for parks, watersheds, private and public property. It provides structural and functional information about park trees (e.g., composition, benefits, and value).

5.4 Equity

UFMP implementation will consider and center equity by reflecting on the following considerations for actions during implementation:

- **Disproportionate impacts**
 - o Does this action generate externalities, or unintended impacts, which affect communities of color, low-income communities, and those communities impacted by environmental hazards?
 - o If so, how can we mitigate these impacts and ensure that implementation is equitable.
- **Access to participation and technical knowledge**
 - o Does this action incorporate a range of access needs?
 - o How can the city conduct more effective outreach for affected communities of color, low-income communities, and those communities impacted by environmental hazards?
- **Tracking progress**

- o Does this action prioritize those communities with compounded social and health issues, as identified in the priority planting analysis?
- o How will the city measure success in its equity and inclusion efforts for this action?

How can we include and uplift communities of color, low-income communities, and those communities impacted by environmental hazards through this action?

5.5 Community Participation

A great measure of UFMP success will be its ability to meet community expectations. The results of the UFMP implementation will be measurable in terms of improvements to efficiency and control over costs for maintenance activities. However, community satisfaction can be measured through surveys, public support for UFMP goals and actions, and the level of volunteer engagement and support for urban forestry programs.

Community engagement is the primary focus of the following actions:

Focus Area	Action ID	Action Short Name
Urban Forest Sustainability	UFS5.2	Update recommended planting lists
Municipal Operations	MO4.1	Collaborate with potential end users
Municipal Operations	MO4.2	Develop a network for end users
Municipal Operations	MO4.3	Designate and publicize free wood chip sites
Community Collaboration & Engagement	CCE2.1	Partner with nonprofits and community groups for tree planting
Community Collaboration & Engagement	CCE5.1	Recruit urban forestry and environmental professionals
Community Collaboration & Engagement	CCE5.2	Develop an annual board report

5.6 Funding & Partnerships

Funding tree maintenance and planting projects can be achieved by funding specific urban forestry projects, and by incorporating tree planting and maintenance into other projects and plans. Specific sources of funding or funding partnerships include:

- Washington State Department of Natural Resources Community Forestry Grants
- Tree City USA grants
- Public Works collaboration on project-specific grants
- Stormwater/utility fees
- Impact fees
- Forterra
- Tree in-lieu fund
- Permit fees & penalties

The following groups have been identified as potential partners for achieving urban forest management objectives at the City of Gig Harbor:

- Puyallup Tribe
- Gig Harbor Land Conservation Fund
- Forterra
- Master Builders Association of Pierce County
- Crescent Valley Alliance
- Friends of Pierce County
- Fish Association - Donkey Creek
- Wildfish Conservancy
- Harbor Wildwatch
- Peninsula School District
- Greater Gig Harbor Foundation
- KGI Watershed Council
- Great Peninsula Conservancy

Appendices

Appendix A: References

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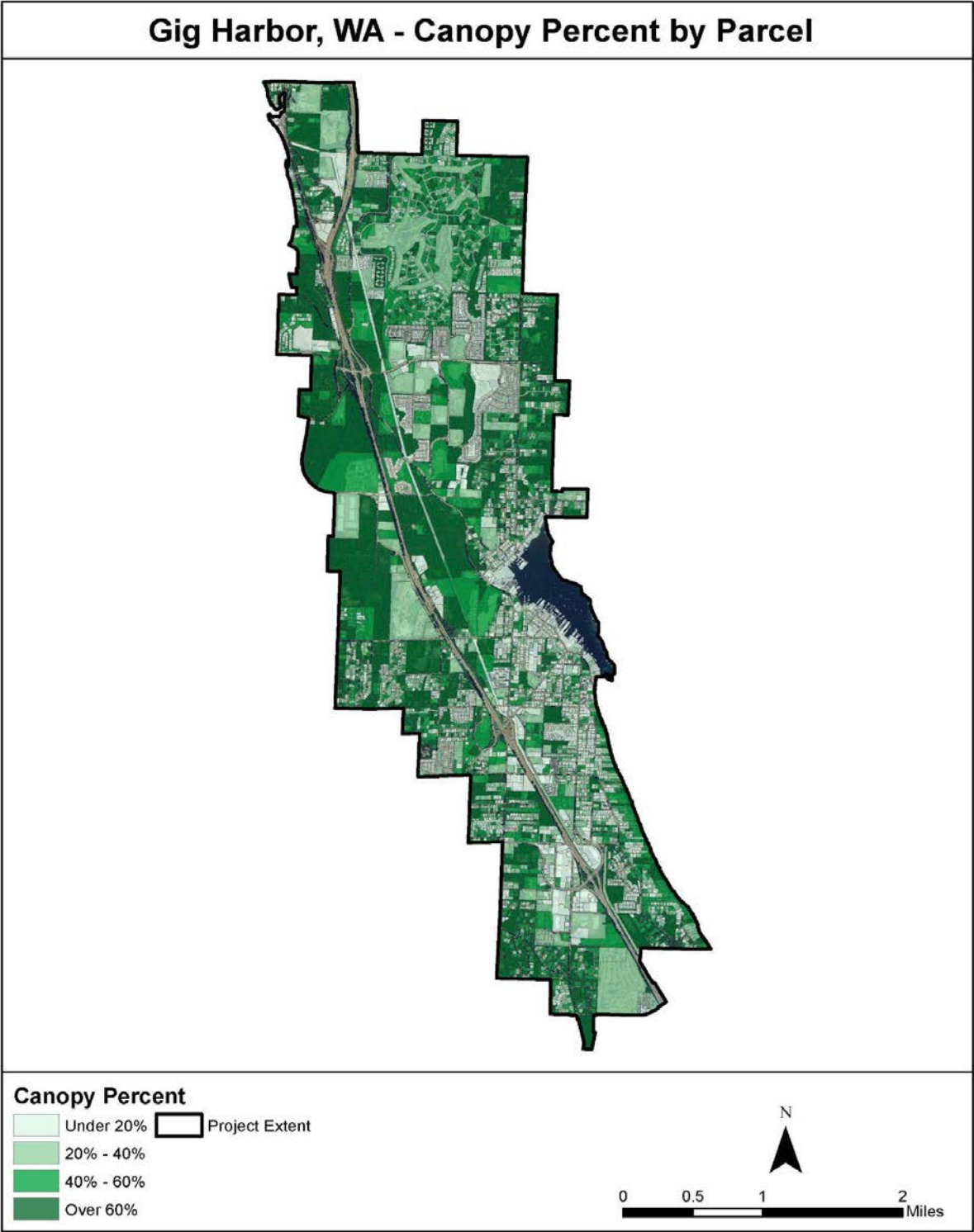
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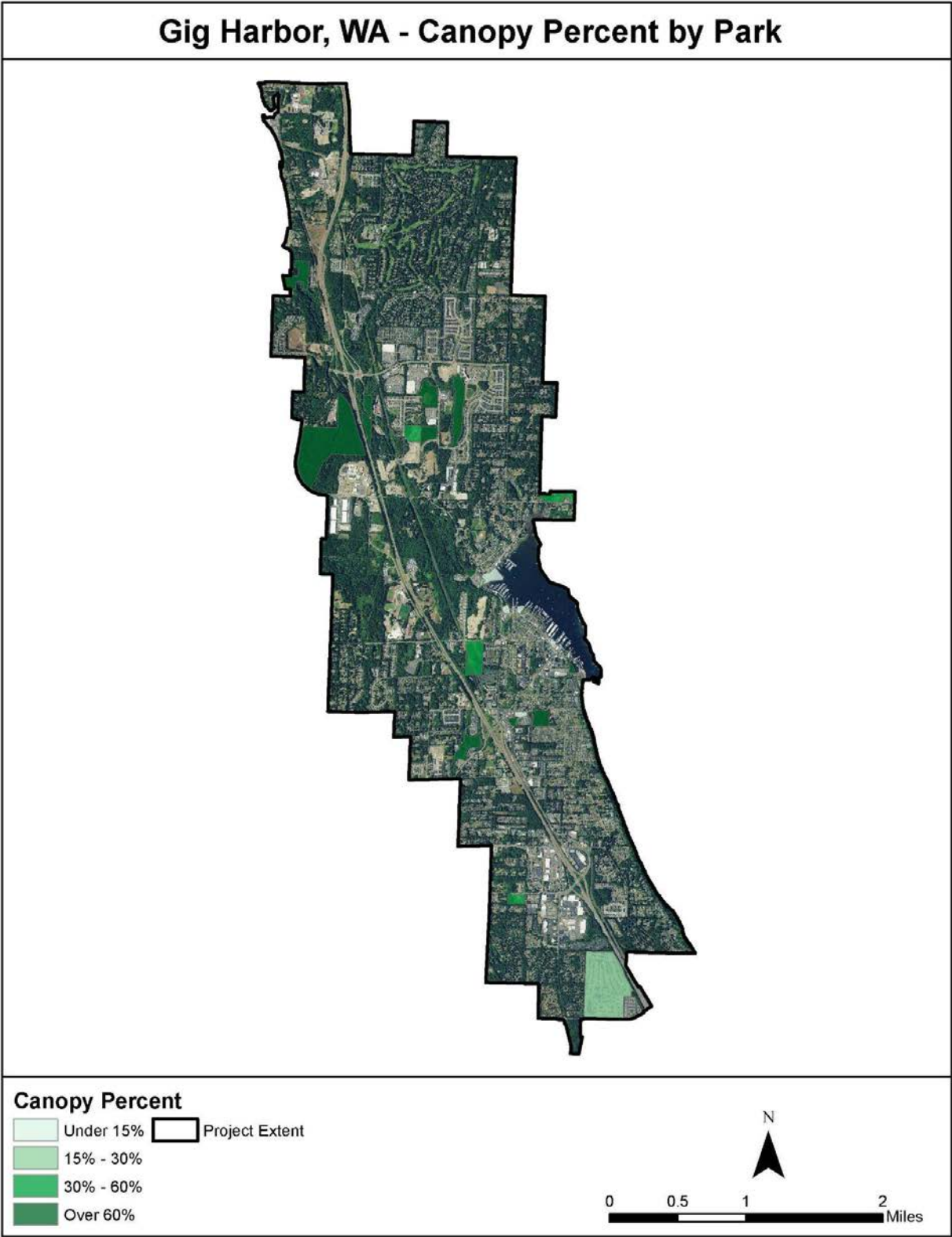
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Appendix B: Maps⁵



⁵ <https://canopy.treekeepersoftware.com/gigharborwa>



Appendix C: Indicators of A Sustainable Urban Forest, Management Approach

This table provides general indicators for a sustainable urban forest management program. The goals and actions presented in the plan integrate these general concepts with the specific needs and interests of the city.

Indicators	Gig Harbor Today	Performance Levels			Overall Objective
		Low	Moderate	Good	
Tree Inventory	Outdated inventory, not actively referenced for parks or rights-of-way.	No inventory or out-of-date inventory of publicly-owned trees.	Partial or sample-based inventory of publicly owned trees, inconsistently updated.	Complete, GIS-based inventory of publicly owned trees updated on a regular, systematic basis.	Comprehensive, GIS-based, current inventory of all intensively managed public trees to guide management, with mechanisms in place to keep data current and available for use. Data allows for analysis of age distribution, condition, risk, diversity, and suitability.
Canopy Assessment	First assessment completed in 2022. UTC estimated at 40.7%	No tree canopy assessment	Sample-based canopy cover assessment	High-resolution tree canopy assessment using aerial photographs or satellite imagery	Accurate, high-resolution, and recent assessment of existing and potential citywide tree canopy cover that is regularly updated and available for use across various departments, agencies, and/or disciplines.
Management Plan	In development.	No urban forest management plan exists.	A plan for the publicly owned forest resource exists but is limited in scope, acceptance, and implementation.	A comprehensive plan for the publicly owned forest resource exists and is accepted and implemented.	Existence and buy-in of a comprehensive urban forest management plan to achieve citywide goals. Re-evaluation is conducted every 5 to 10 years.

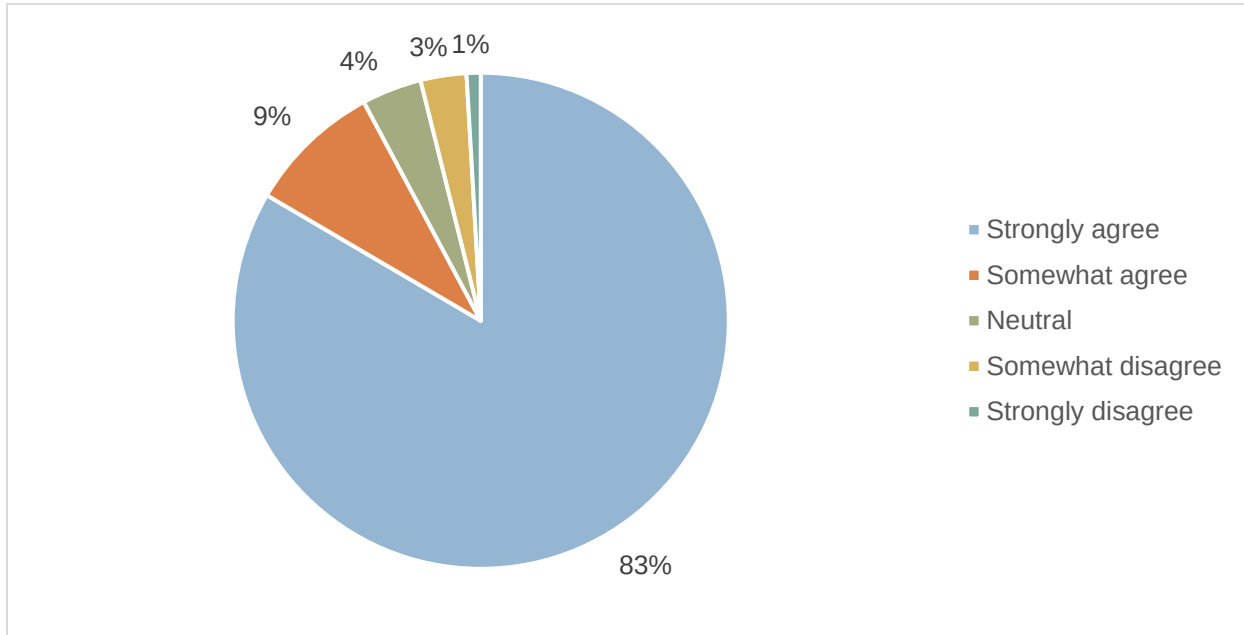
Indicators	Gig Harbor Today	Performance Levels			Overall Objective
		Low	Moderate	Good	
Risk Management Program	Risk management is limited to signage in parks or reactive based on complaints.	Request-based, reactive system. The condition of publicly owned trees is unknown.	There is some degree of risk abatement thanks to knowledge of condition of publicly owned trees, though generally still managed as a request-based reactive system.	There is a complete tree inventory with risk assessment data and a risk abatement program in effect. Hazards are eliminated within a set time period depending on the level of risk.	All publicly owned trees are managed for maximum public safety by way of maintaining a citywide inventory, conducting proactive annual inspections, and eliminating hazards within a set timeframe based on risk level. Risk management program is outlined in the management plan.
Maintenance Program of Publicly Owned Trees	Few trees have been inventoried, no standard for information collection, no reporting for public rights-of-way or City-managed facilities	No maintenance plans are in effect.	Only reactive management efforts to facilitate public use (risk abatement).	Maintenance plans are in place for publicly owned areas focused on managing ecological structure and function and facilitating public use.	The ecological structure and function of all publicly owned trees are protected and enhanced while accommodating public use where appropriate.
Planting Program	No budget item for annual planting. Planting locations are	Tree establishment is ad hoc.	Tree establishment is consistently funded and occurs on an annual basis.	Tree establishment is directed by needs derived from a tree inventory and other	Comprehensive and effective tree planting and establishment program is driven by canopy cover goals, equity considerations,

Indicators	Gig Harbor Today	Performance Levels			Overall Objective
		Low	Moderate	Good	
	opportunistic, less strategic.			community plans and is sufficient in meeting canopy cover objectives.	and other priorities according to the plan. Tree planting and establishment is outlined in the management plan.
Tree Protection Policy	Regulations via tree ordinances and development code, but with few controls on private property outside of development. Code enforcement has limited follow-up after permits are issued.	No tree protection policy.	Policies are in place to protect trees, but the policies are not well-enforced.	Protection policies ensure the safety of trees on public and private land. The policies are enforced and supported by significant deterrents and shared ownership of city goals.	Comprehensive and regularly updated tree protection ordinance with enforcement ability is based on community goals. The benefits derived from trees on public and private property is ensured by the enforcement of existing policies.

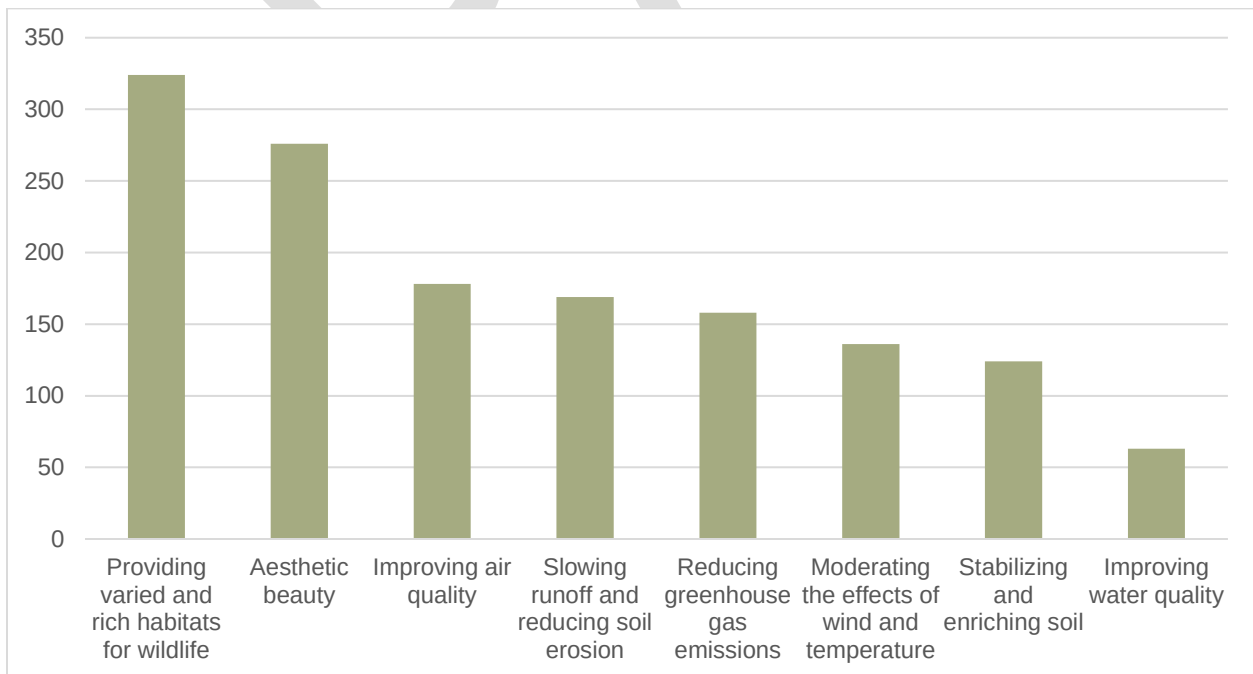
Indicators	Gig Harbor Today	Performance Levels			Overall Objective
		Low	Moderate	Good	
City Staffing and Equipment	Staff are trained for tree work, one ISA certified arborist on Staff. ISA certified arborists are contracted to fill in gaps.	Insufficient staffing levels insufficiently trained staff, and/or inadequate equipment and vehicle availability.	Certified arborists and professional urban foresters on staff have some professional development but are lacking adequate staff levels or adequate equipment.	Multi-disciplinary team within the urban forestry unit, including an urban forestry professional, operations manager, and arborist technicians. Vehicles and equipment are sufficient to complete required work.	Adequate staff and access to the equipment and vehicles to implement the management plan. A high-level urban forester or planning professional, strong operations staff, and solid certified arborist technicians.
Funding	Public funding supports, primarily reactive, tree care.	Funding comes from the public sector only and covers only reactive work.	Funding levels (public and private) generally cover mostly reactive work. Low levels of risk management and planting in place.	Dynamic, active funding from engaged private partners and adequate public funding are used to proactively manage and expand the urban forest.	Appropriate funding in place to fully implement both proactive and reactive needs based on a comprehensive urban forest management plan.

Appendix D: Community Survey Results

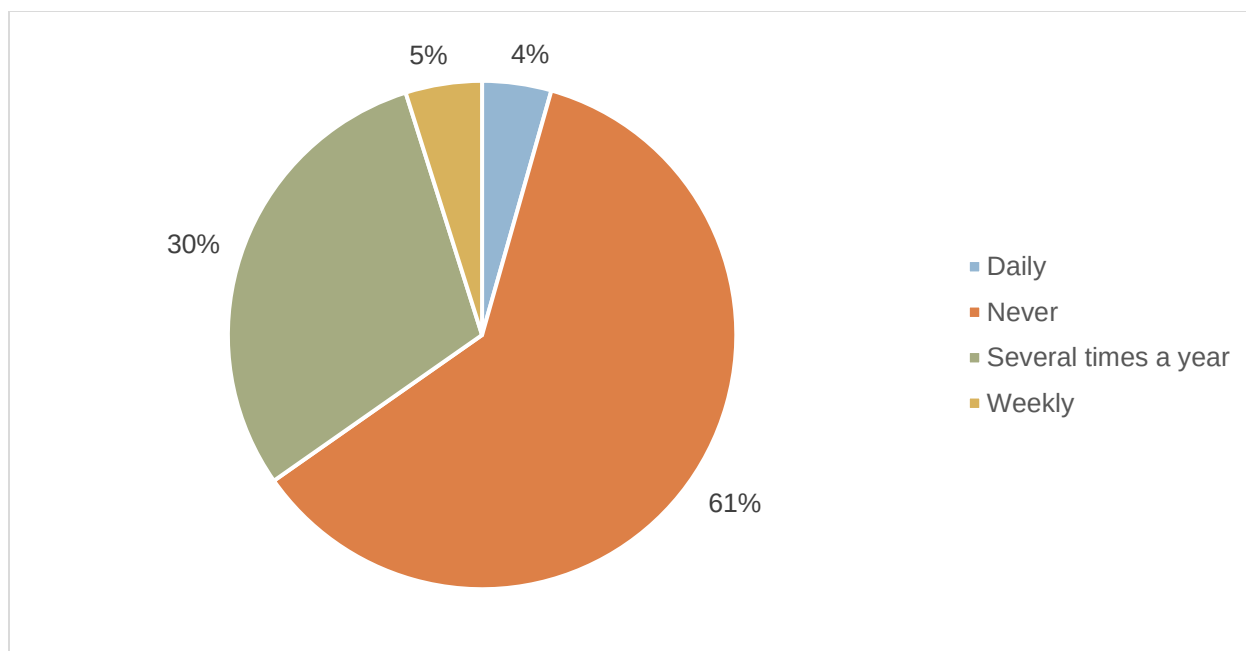
Survey data was collected online and advertised during the month of February and March 2023. The survey was advertised on the city's web page and through 4,941 postcards to addresses within the city limits and the urban growth area (UGA). The survey closed with 437 responses. The survey did not correct for nonresponse bias where opinions may differ from those who don't respond.



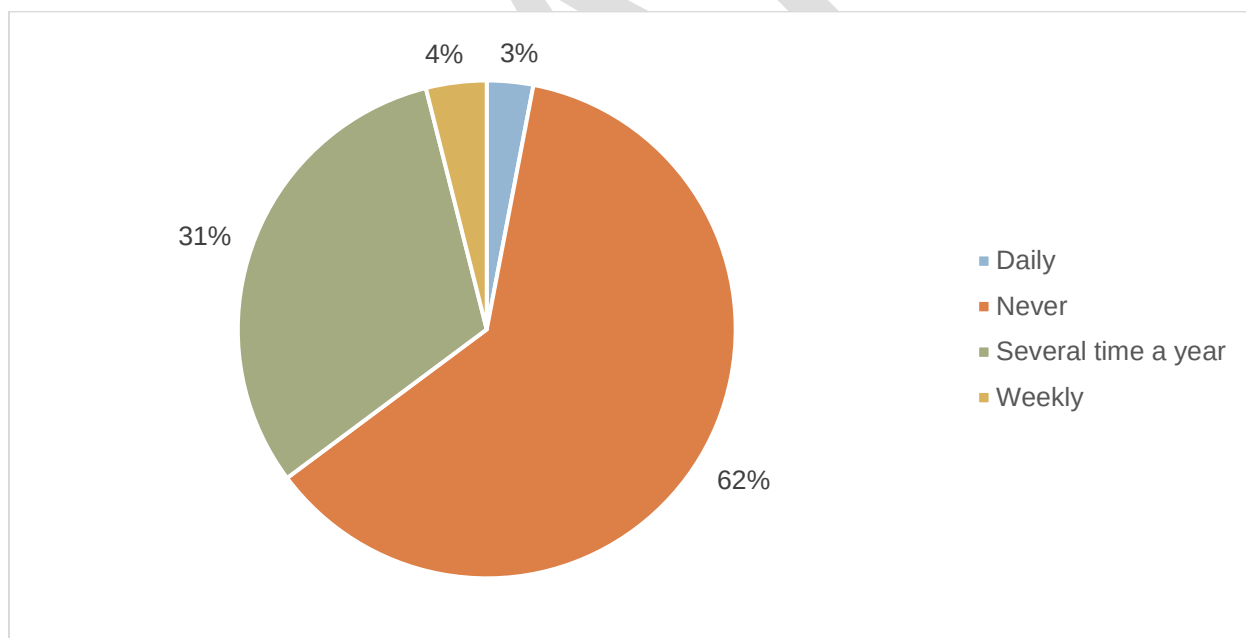
Question 1. Trees are important to the quality of life in Gig Harbor.



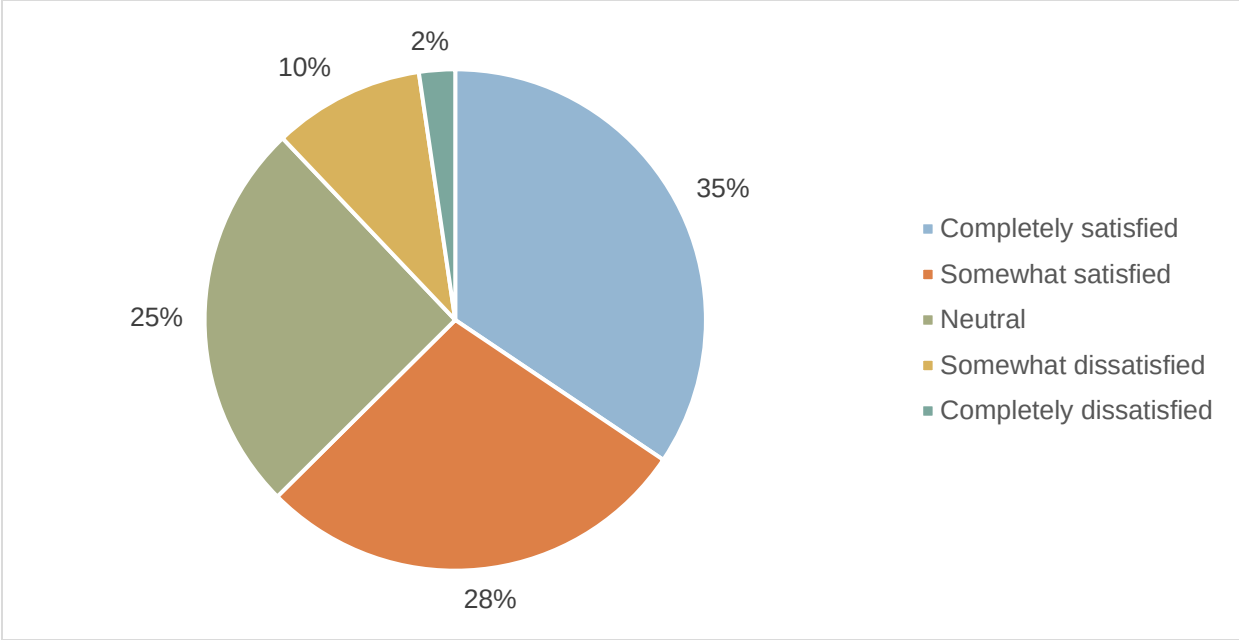
Question 2. Which tree-related benefits are most beneficial to you? Pick three.



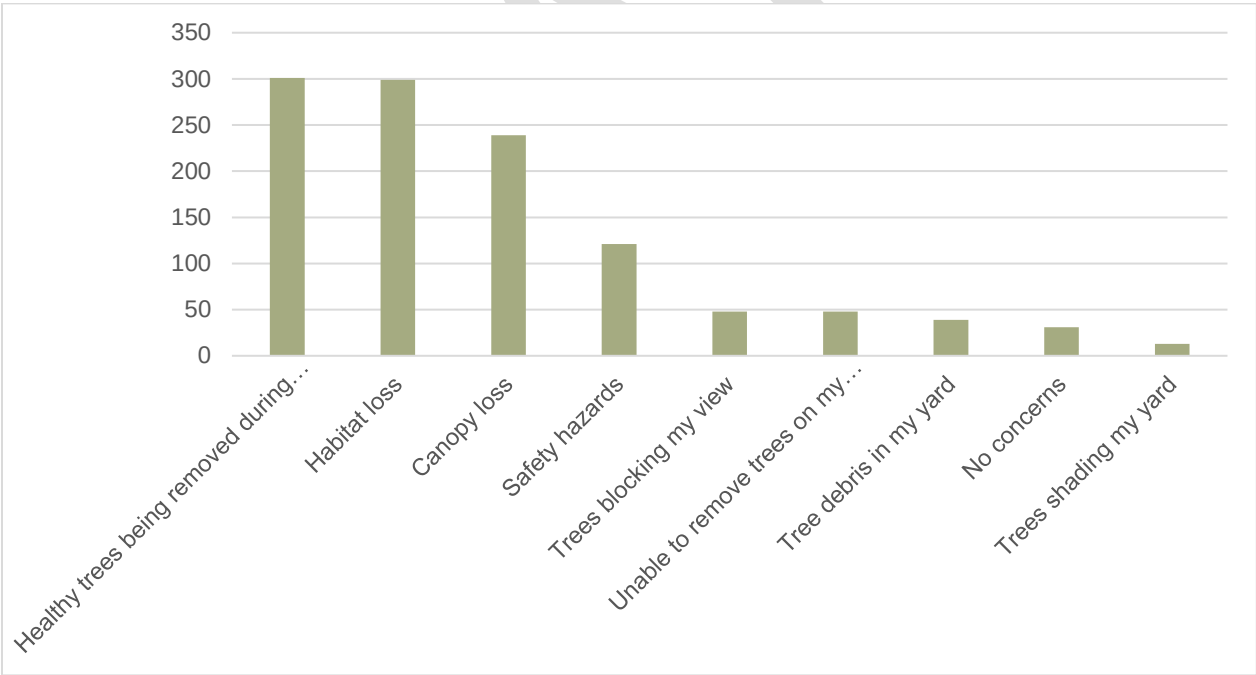
Question 3. Trees can grow to obstruct streets and sidewalks. How often do you encounter this issue with trees on public property?



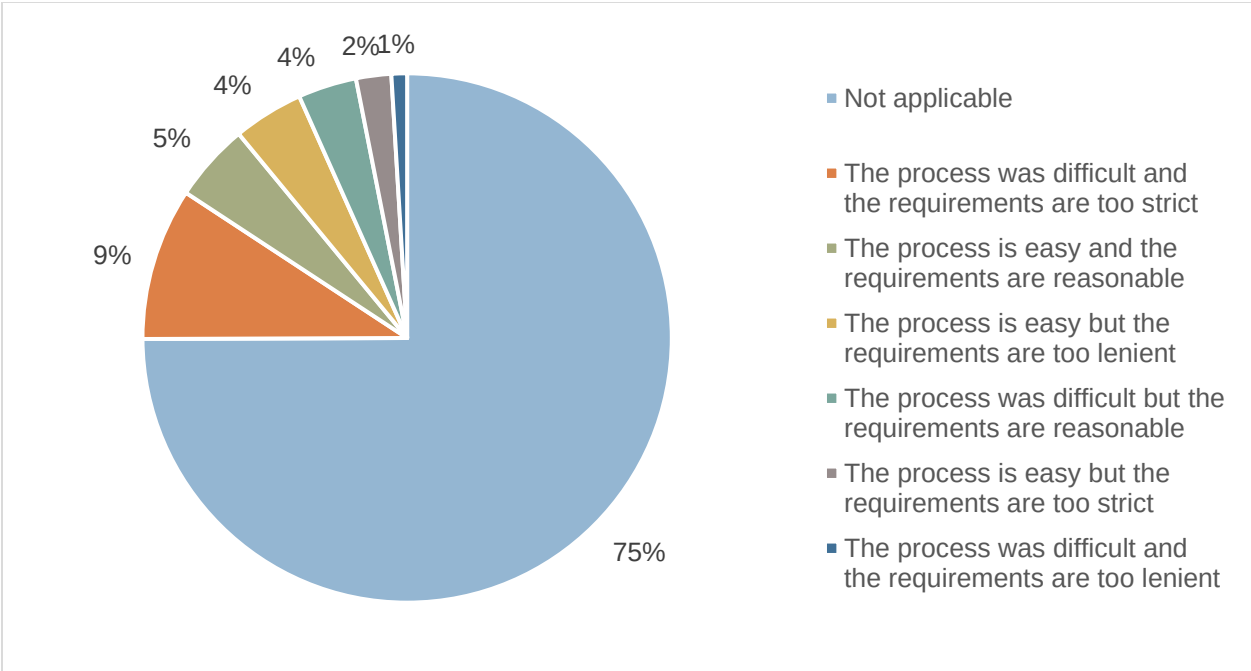
Question 4. Trees can become damaged or develop structural weakness over time, and these issues may be risks for injury to people and property. How often do you encounter this issue with trees on public property?



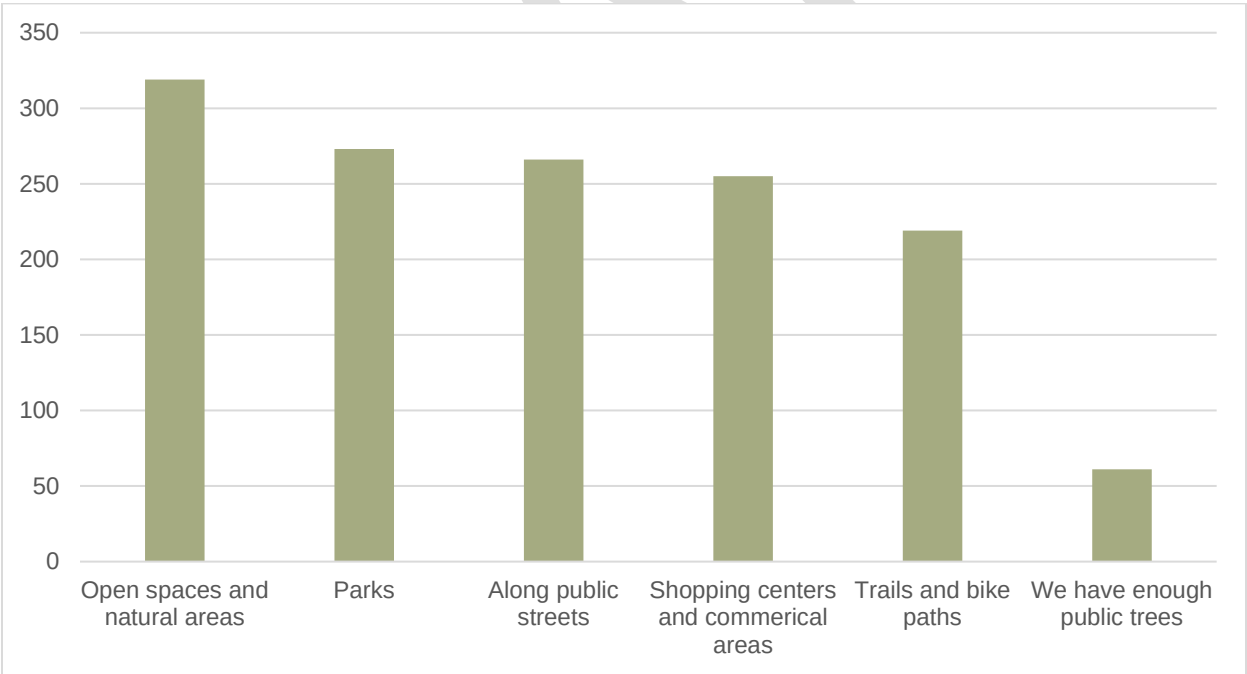
Question 5. What is your satisfaction with the current level of maintenance provided for trees on public property?



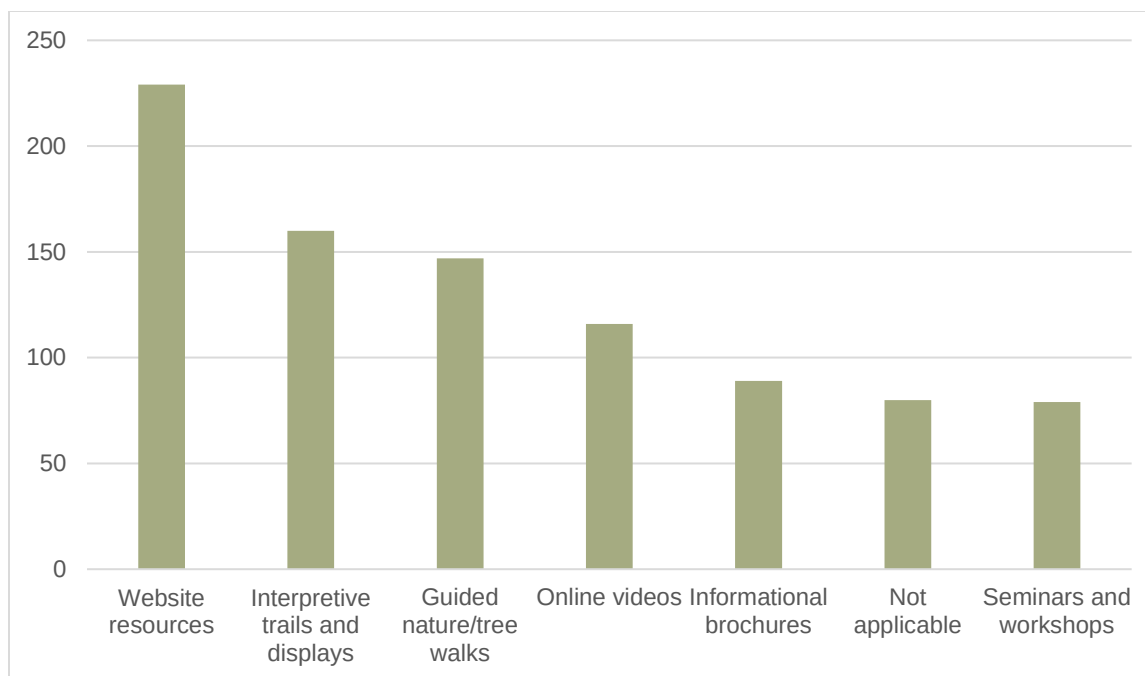
Question 6. What are your top concerns for Gig Harbor trees? Select all that apply.



Question 7. What is your experience with the city's tree regulations for private property?



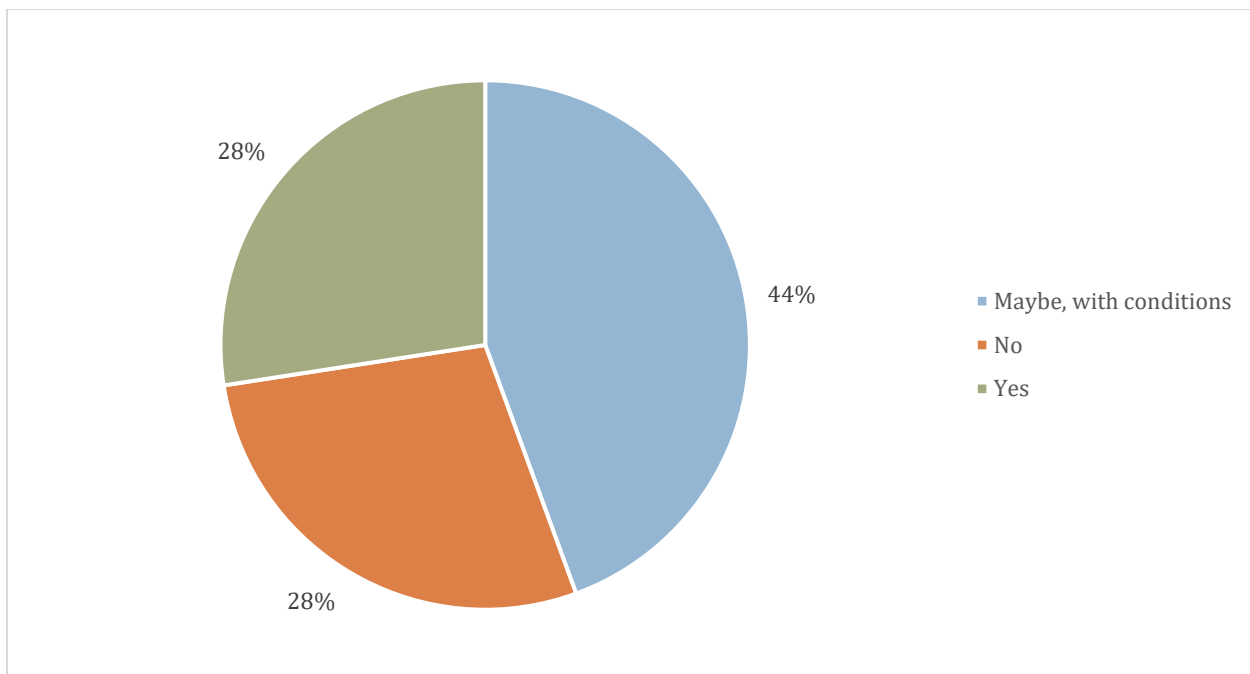
Question 8. Where would you like to see more trees planted? Select all that apply.



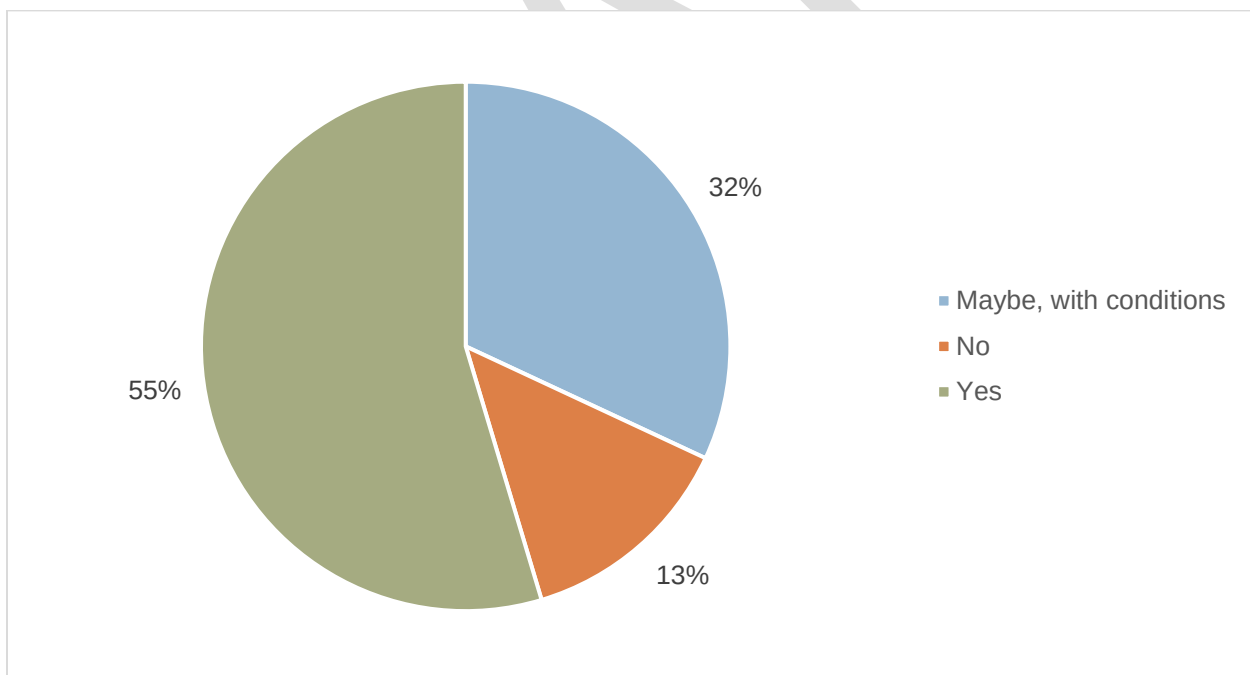
Question 9. How would you like to receive information about urban forestry? Select all that apply.



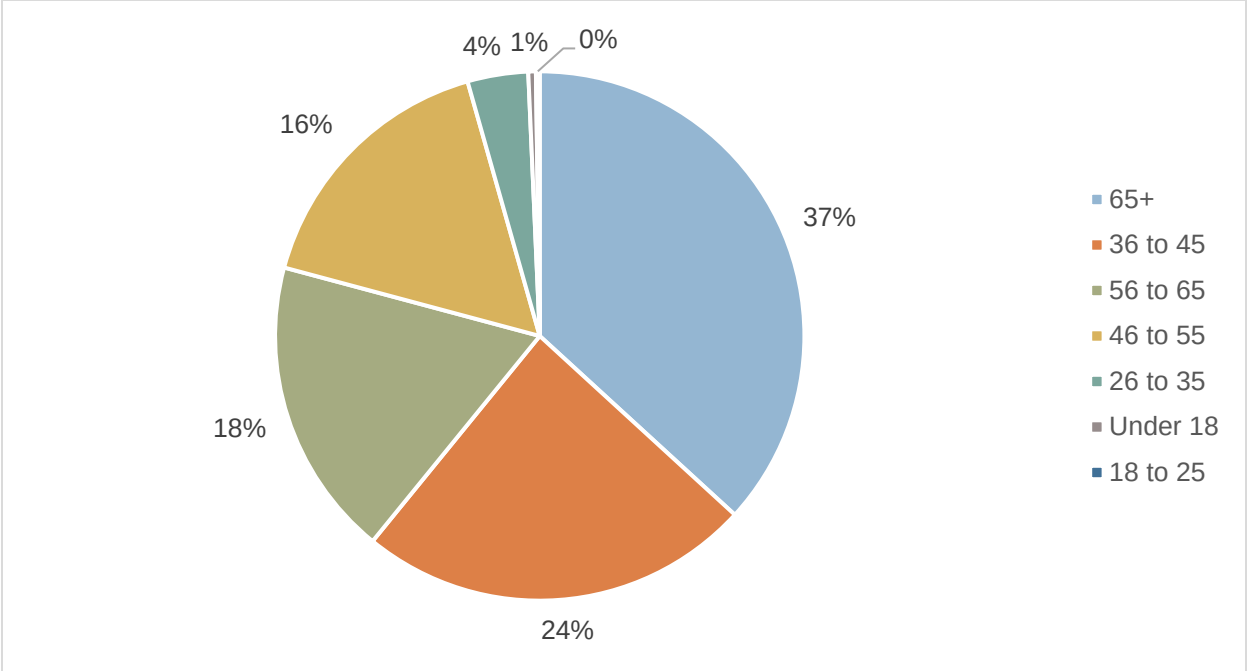
Question 10. What do you know about the city's tree regulations on private property? Select all that apply.



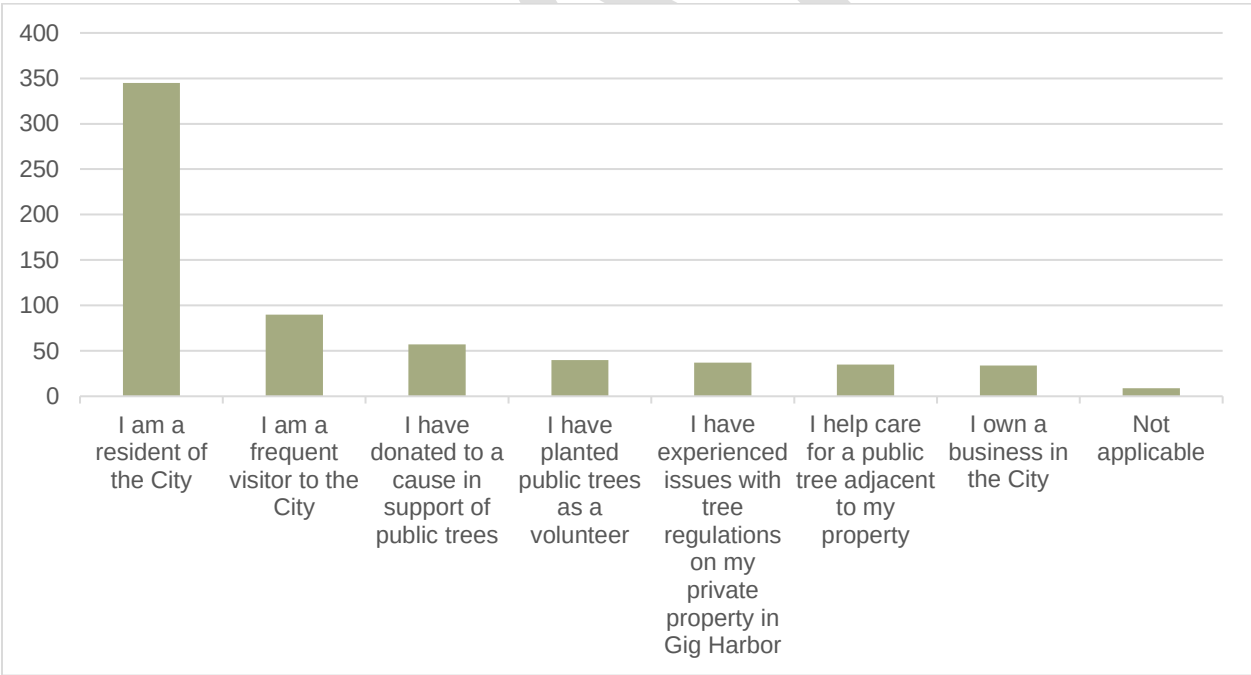
Question 11. What do you think about a Citywide special assessment (property tax) to fund urban forestry programs?



Question 12. What do you think about the city hiring a staff arborist to handle community tree issues including forestry planning, maintenance issues, outreach, and stewardship?



Question 13. What is your age?



Question 14. What is your relationship with trees in Gig Harbor? Select all that apply.

Appendix E: Soil Volume and Tree Stature

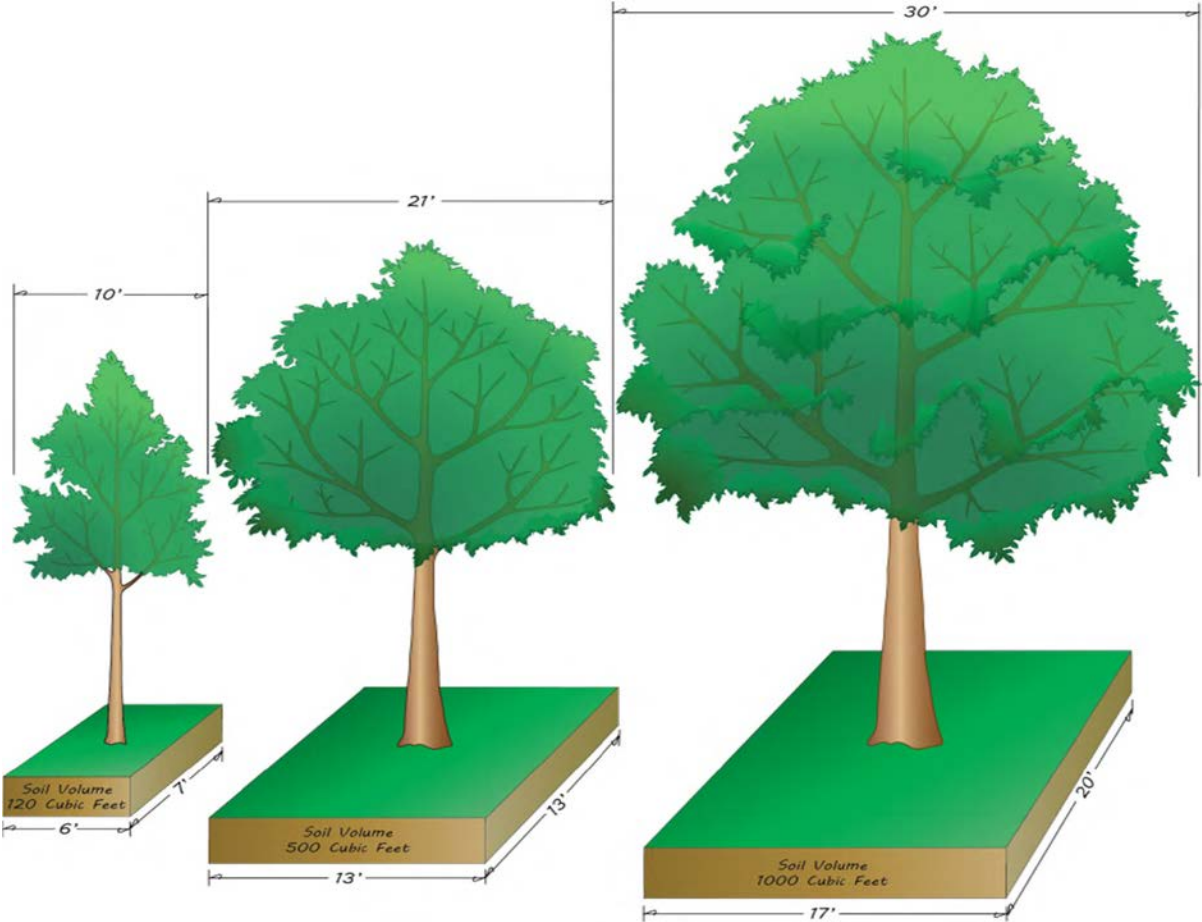


Image 3. Soil Volume and Tree Stature

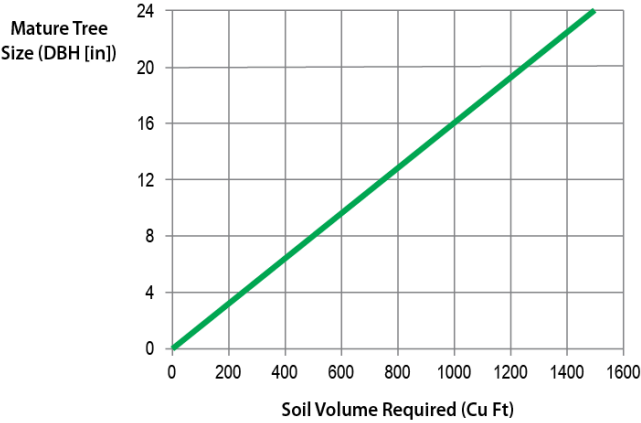


Image 4. Recommended Soil Volume by Mature Tree Size

An aerial photograph showing a dense, lush green forest canopy. The trees are tightly packed, with various shades of green visible, suggesting a mix of species. The perspective is from directly above, looking down into the foliage.

Urban Forestry Management Plan

City of Gig Harbor | September 14, 2023

Plan Process

Urban Tree Canopy Assessment

- Remote sensing exercise
- Identified 40.7% canopy cover
- Identified priority planting areas

Outreach

- Partner interviews
- Staff interviews
- Community survey
- Planning commission meetings & feedback

Strategy & Action Development

- Based on outreach, indicators of sustainable forest management tool & BMPs from consultant

How Do We Compare?

Relative to other cities in the region, Gig Harbor has a good amount of canopy cover!

The consultant suggests our biggest challenge is to preserve what we have.

Community	Canopy Percent
Enumclaw	16.6%
Tacoma	20.1%
Lakewood	22.4%
University Place	25.1%
Puyallup	26.3%
DuPont	29.0%
Olympia	29.7%
Shelton	31.2%
Federal Way	38.5%
Gig Harbor	40.7%
Port Orchard	43.7%
Bremerton	49.7%

State of the Urban Forest

Land Cover

- 40.7% tree canopy
- 30.3% hard surface
- 17.1% low vegetation
- 6.5% bare soil
- 5.4% open water

Canopy Change

- 8-acre net increase (0.5%) since 2017
- Private land cover was a significant driver of change

Priority Planting

- Potential to increase canopy cover to 64% with strategic planting – requires collaboration across departments and region.

Indicators of Sustainable Forest Management

Indicators	Gig Harbor Today	Performance Levels		
		Low	Mod.	Good
Tree Inventory	Outdated and unused inventory	●		
Canopy Assessment	UTC estimate, 40.7%			●
Management Plan	In process, but limited in scope		●	
Risk Management	Request-based, reactive	●		
Maintenance Program	Reactive management efforts		●	
Planting Program	Tree establishment is ad hoc	●		
Tree Protection Policy	Policy in place, not well-enforced		●	
City Staffing & Equipment	Certified arborist on staff, lacking in adequate support staff and equipment		●	
Funding	Funding supports reactive tree care		●	

Interviews & Outreach

Staff

- Staff resource is limiting factor for tree planting & maintenance.
- No tree planting plan.
- Recommendation to create an urban forester/arborist position.

Council & Commissions

- Recognize importance of urban forestry.
- Desire to conduct more public outreach & education.

Community

- 400+ survey responses.
- People love trees!
- More than 50% did not know we have tree regulations.
- Moderate support for property assessment.

Goals & Strategies

Urban Forest Sustainability

Goal: Maintain existing canopy and increase canopy cover to 45% over the next 10 years.

Strategies

Collect & maintain a functional database about the urban forest

Manage tree population species, age distribution & density

Adopt an overall canopy goal

Increase overall canopy coverage

Plant suitable trees & schedule replacement of unsuitable trees

Include ecosystem services of trees in long range planning

Goals & Strategies

Municipal Operations

Goal: Develop policies that promote routine inspection & formalize city tree management strategies.

Strategies

Maintain the Urban Forestry Management Plan

Staff & train appropriately for urban forest management

Establish trees as infrastructure

Establish a tree bank or fund

Goals & Strategies

Community Collaboration & Engagement

Goal: Build stronger community engagement & public participation in forest stewardship.

Strategies

Formalize relationships with organizations that share urban forest sustainability objectives

Encourage tree planting & maintenance on private property

Establish heritage tree designation

Establish an urban forestry advisory board

Implementation & Quick Wins

Focus Area	Action Short Name
Urban Forest Sustainability	Develop urban tree canopy goal
Urban Forest Sustainability	Update tree preservation ordinance
Urban Forest Sustainability	Set a replacement ratio of 3:1 for trees removed in natural and preservation areas
Municipal Operations	Draft annual work plans for UFMP
Municipal Operations	Establish and convene an urban forestry work group
Community Collaboration & Engagement	Identify additional tree funding sources
Community Collaboration & Engagement	Partner with nonprofits and community groups for tree planting
Community Collaboration & Engagement	Conduct public outreach and education around tree preservation ordinance
Community Collaboration & Engagement	Develop a definition for heritage trees
Community Collaboration & Engagement	Recruit urban forestry and environmental professionals
Community Collaboration & Engagement	Develop an annual board report
Community Collaboration & Engagement	Identify urban forestry awards and grants



Staff Memorandum

TO: Mayor and City Council

FROM: Roxanne Robles, Senior Planner

SUBJECT: Draft Climate Action Plan

DATE: September 14, 2023

At the upcoming City Council Study Session on September 14, 2023, city staff will provide a review of the draft Climate Action Plan (CA). The plan has been developed with careful attention to the greenhouse gas (GHG) emission inventory, state and regional regulations, and public engagement.

Plan Development

Gig Harbor's CAP was developed with robust GHG emission analysis, community feedback, regional best practices, and feedback from city staff and regional partners. The CAP was developed in three parts:

- 1. Greenhouse Gas Emissions Inventory & Analysis:** The consultant analyzed numerous datasets to develop an inventory of Gig Harbor GHG emissions for the year 2019. Gig Harbor emitted an estimated 82,524 metric tons of CO₂ from transportation, building energy, land use, refrigerants, solid waste, and wastewater.
- 2. Outreach:** Staff and the consultant developed an online survey which was completed by more than 100 respondents and conducted a virtual community workshop with 17 participants. Staff conducted three planning commission meetings, and three City Council study sessions to review the deliverables and draft UFMP.
- 3. Goals, Strategies & Actions Development:** The consultant conducted a review of available data, and developed a set of goals, strategies, and actions to guide

the city's climate action planning. The consultant also conducted an implementation with ten key staff members to get input on the proposed strategies and actions, identify considerations for implementation, and opportunities for further collaboration outside the city.

The CAP is structured in six parts:

- 1. Introduction:** The history of climate actions in Gig Harbor, and an overview of anthropogenic climate change and why a climate action plan is important.
- 2. CAP Development & Community Engagement:** An overview of the climate action planning process and community outreach actions. The consultant summarizes themes from the community engagement in Figure 9.
- 3. Greenhouse Gas Emissions Inventory & Analysis:** The consultant analyzed a large number of datasets to develop a comprehensive GHG emissions inventory which is summarized in Figure 10. They then summarized emissions targets from Pierce County and Washington State to develop key insights and high-priority areas for reduction in GHG emission in Gig Harbor.
- 4. Climate Impacts:** A short section which emphasizes the need for immediate action based on Gig Harbor's environmental risks such as wildfire, sea level rise, and landslides.
- 5. Strategies & Actions:** A comprehensive discussion and list of the goals, strategies, and actions proposed by the consultant for climate action in Gig Harbor.
- 6. Implementation Plan:** An overview of which departments will be crucial leaders in different aspects of CAP implementation, as well as considerations for equitable implementation in climate planning.

Gig Harbor Greenhouse Gas Emissions Summary

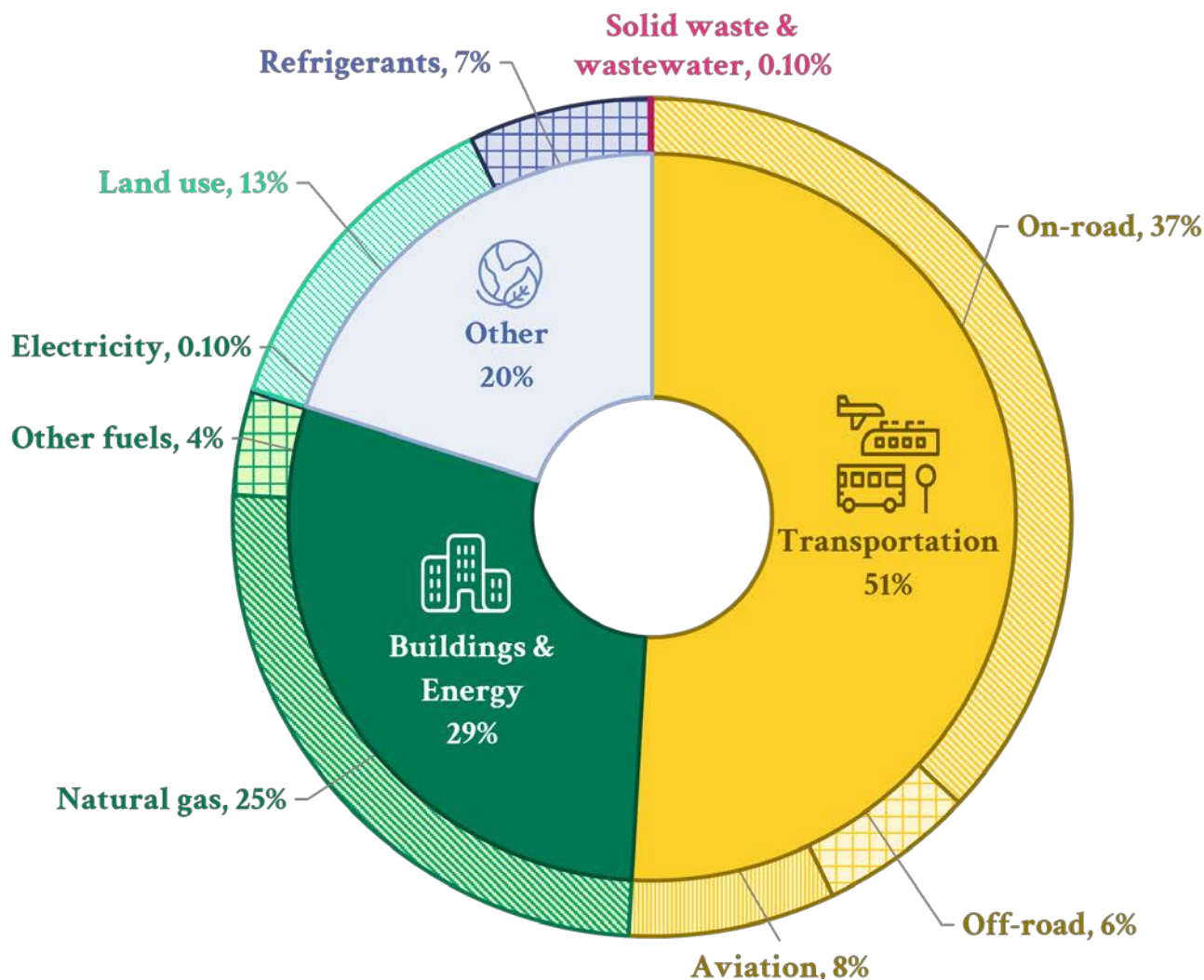
A greenhouse gas (GHG) emissions inventory was conducted for Gig Harbor based on 2019 levels and activities to inform CAP goals, targets, and metrics. An analysis of Gig Harbor's 2019 GHG emissions revealed the following key insights:

Figure 1 Gig Harbor's 2019 Greenhouse Gas Emissions Inventory

Transportation was the largest source of emissions within the community, responsible for **51%** (41,743 MTCO₂e) of Gig Harbor's emissions profile. Within transportation, on-road sources contributed 73% (30,503 MTCO₂e).

Buildings and energy were the second largest source of community-wide emissions, contributing **29%** (23,907 MTCO₂e) to Gig Harbor's emissions profile. Within buildings and energy, natural gas was the largest contributor emitting **88%** (20,933 MTCO₂e) of the sector's emissions.

The remaining emissions occur from **land use** (13%, 11,042 MTCO₂e), **refrigerants** (7%, 5,729 MTCO₂e), and **solid waste and wastewater** (0.1%, 103 MTCO₂e).



Gig Harbor's Climate Action Plan Vision

The consultant developed a vision statement to guide the climate action planning process:

We will reduce emission and increase community resilience to climate impacts by closely collaborating with neighboring communities. We will lead by example in our own city operations to establish Gig Harbor as a regional leader in climate action. We will educate and engage our residents and businesses to cultivate accountability and promote behavior change to address the climate crisis. Our approach to climate action will take the opportunity to reduce existing inequalities within our community and improve quality of life for all Gig Harbor residents.

Goals, Strategies & Actions

Over the next 20 years, Gig Harbor will be able to enhance the management of the urban forest through the implementation of actions recommended in this plan. The long-range strategic goals provided in this plan will address the three components of a sustainable urban forestry program: Urban Forest Sustainability, Municipal Operations and Community Collaboration and Engagement.

Crosscutting & Municipal		
Goal: Reduce community and municipal GHG emissions through internal City policies and initiatives and by encouraging community members and City staff to participate in local climate action.		
Action ID	Action Short Name	Action Description
Strategy 1: Engage the community in climate action.		
CC1.1	Climate and sustainability in schools	Partner with local schools to educate youth on climate and sustainability issues. Encourage energy efficiency and electrification of building operations, and support waste reduction and recycling in schools.
CC1.2	Climate education and awareness	Expand climate education campaigns to encourage the Gig Harbor community to advocate for state and federal legislation that supports local climate mitigation and adaptation efforts. Develop a climate outreach and education campaign or program to support ongoing community engagement in climate action by creating initiatives such as addressing misinformation in energy use or building climate pledge programs. Maintain a publicly available platform to track CAP and GHG reduction progress.
CC1.3	Climate partnerships and collaboration	Partner with neighboring cities and other Pierce County groups to advance regional initiatives to improve climate mitigation measures and increase community resilience to climate change.

Strategy 2: Reduce GHG emissions from municipal operations.

CC2.1	City carpool and commute reduction programs	Reduce emissions from City staff commuting by implementing an incentive program for carpooling, biking, or taking public transportation to work. Preserve and expand flexible scheduling and remote work options for staff.
CC2.2	Municipal vehicle electrification	Transition the municipal vehicle fleet to all electric.
CC2.3	Municipal solar installation	Retrofit City buildings with on-site solar and renewable energy storage systems.

Strategy 3: Integrate climate change into City planning & decision-making.

CC3.1	Climate considerations in government	Consider climate impacts when reviewing or approving major City developments, infrastructure changes, and policies. Ensure all City plans (e.g., Comprehensive Plan, Emergency Management Plan) account for climate change and its impact on vulnerable communities. Incorporate environmental justice criteria and priorities into zoning, land use planning, permitting policies, and development of new projects.
CC3.2	Green, affordable housing	Review and update land use, zoning, and planning policy to prioritize the development of green, affordable housing. Utilize equitable, transit-oriented development planning strategies to allow for broader housing types in single family zones.

Strategy 4: Increase participation in regional and local climate outreach and advocacy.

CC4.1	Collaboration with local tribes	Work with local tribal groups to share resources and ideas on climate change issues.
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Buildings & Energy

Goal: Reduce building GHG emission through energy efficiency, building electrification, and renewable energy.

Action ID	Action Short Name	Action Description
Strategy 1: Transition to renewable building energy.		
BE1.1	Heat pump program expansion	Partner with Peninsula Light Company to expand regional electric heat pump incentives to replace natural gas-powered furnaces and increase energy efficiency in City and residential buildings. Action will focus particularly on replacing expensive oil and gas heating systems with efficient heat pump systems and serving low-income residents.
BE1.2	Contractor incentive & training program	Work with regional jurisdictions and agencies to expand upstream and midstream incentives for building

		electrification retrofits to local distributors and contractors. Create or promote a contractor training and/or certification program focused on efficient, electric heat pump installation.
BE1.3	WA State Building Code compliance	Promote transition from natural gas in new buildings by implementing building codes that align with the policies outlined by the Washington State Building Code Council.
BE1.4	Green power promotion	Enroll City facilities and encourage businesses and residents to enroll in Peninsula Light Company's Renewable Option Program.
BE1.5	Solar energy grid resiliency and community solar projects	Improve local energy resilience by accelerating improvements to the energy grid and solar energy storage through subsidy and grant programs. Create incentives and explore grant opportunities to support community solar projects.

Strategy 2: Reduce energy use in new and existing buildings.

BE2.1	Energy efficiency retrofits	Encourage early adoption of efficiency retrofits before they are required through local or state mandates; partner with local organizations to provide and promote energy efficiency incentives. Develop free home energy audits and upgrade programs for income-eligible residents.
BE2.2	Green Infrastructure Policy	Integrate green building guidelines into the Gig Harbor Municipal Code (GHMC). Educate City planning and permitting staff on new energy codes and methods for incentivizing decarbonization in buildings.

Transportation

Goal: Reduce greenhouse gas emissions from transportation by expanding the use of electric vehicles, increasing multimodal transportation options, and improving cycling and pedestrian infrastructure.

Action ID	Action Short Name	Action Description
Strategy 1: Transition to non-fossil fuel vehicles & equipment.		
TR1.1	Public EV Infrastructure Plan	Develop and implement an EV Charging Infrastructure Plan that guides expansion of EV charging capacity throughout the city. Mandate EV ready outlets in all new residential buildings and EV charging stations in newly-constructed buildings.
TR1.2	Community EV education	Create EV communication and outreach programs in the Gig Harbor Community that explain the benefits of EVs, rebates available for EV purchasing, charger locations, and other helpful information.

TR1.3	Electric trolley	Transition to all-electric vehicles for the Gig Harbor Summer Trolley.
TR1.4	Gas powered landscaping equipment phase out	Set target dates to phase out gas-powered landscaping equipment and transition to using electric equipment (lawnmowers, leaf blowers, etc.). Allocate funding for municipal battery-powered equipment upgrades and to avoid breaks due to charging needs, especially for cost burdened residents.
Strategy 2: Reduce vehicle travel.		
TR2.1	Regional public transportation	Advocate and engage in regional opportunities to improve Gig Harbor's public transportation network, including expanding routes offered by the Pierce Transit bus system, the frequency and routes of the Summer Trolley, and electric bike or scooter ride share programs. Focus access on neighborhoods that are not currently served by transit and to services, jobs, and activities for seniors, people with disabilities, and low-income residents.
TR2.2	Bike infrastructure	Encourage cycling by providing bicycle lockers, showers, racks, and other cycling infrastructure at commercial centers and at city workplaces.
TR2.3	Curb management	Incentivize businesses and developers to optimize curbside areas for low-carbon travel modes (bicycles, scooters, etc.).
TR2.4	Dense, mixed use, and transit-oriented development	Review and update land use, zoning, and planning policy to promote dense, mixed-use, and transit-oriented development and enhance options for rideshare, walking, and biking in Gig Harbor. This may include altering zoning and planning policies to integrate Transportation Demand Management (TDM) standards into Comprehensive Plan policies related to development.
Strategy 3: Reduce aviation emissions.		
TR3.1	Aviation industry education and advocacy	Educate residents on air travel alternatives for personal and business trips, such as regional trains or buses. Encourage local advocacy to support statewide aviation decarbonization legislation, including using sustainable aviation fuel and adoption of fuel efficiency measures.

Consumption & Disposal

Goal: Reduce community waste and the greenhouse gas emissions generated from consuming and disposing of goods and materials.

Action ID	Action Short Name	Action Description
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Strategy 1: Reduce waste generation & divert waste from landfills.

CD1.1	Recycling requirements in new buildings	Ensure adequate space for recycling and compost collection in new buildings.
CD1.2	Phase-in mandatory composting/recycling	Phase in mandates for municipal, residential and commercial recycling and composting as required by the state; support businesses, building owners, and community members to comply through educational campaigns and technical assistance programs.
CD1.3	Solid waste emissions reduction	Support state-level policies that promote packaging with the lowest lifecycle GHG emissions. Collaborate with regional waste haulers to develop plans to reduce local emissions from the collection, transport, and disposal of Gig Harbor's waste.

Strategy 2: Produce and consume food sustainably.

CD2.1	Garden access and creation	Support access to and the creation of community gardens at shared spaces and organizations such as schools, churches, and parks.
CD2.2	Food waste reduction plan	Create residential and commercial food waste reduction best practices following the release of the Washington State Food Waste Reduction Plan/Use Food Well Plan, including developing systems to track and report food donations in Gig Harbor.

Natural Systems

Goal: Foster climate resilient natural landscape by conserving water resources and preserving and expanding vital habitats, ecosystems, and natural resources.

Action ID	Action Short Name	Action Description
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Strategy 1: Increase urban tree canopy and expand community green spaces.

NS1.1	Urban Forestry Management Plan (UFMP) and tree planting program	Support the implementation of the UFMP, including update of tree regulations, encouraging residents and property owners to expand tree planting on private property. Offer tree-awareness campaigns and classes to educate the community on tree planting best practices and develop tree planting demonstration programs. Prioritize actions that increase tree canopy, especially in areas subject to urban heat island effect and for overburdened communities.
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Strategy 2: Promote water conservation and enhance water system resiliency.

NS2.1	Native vegetation protection	Continue to use the best available climate science to identify and protect environmentally critical areas to protect native habitats. Engage the public in promoting native vegetation through public outreach campaigns and partner with relevant community organizations to leverage volunteers, such as Harbor Gardeners or Tacoma Tree Foundation.
NS2.2	Water-efficient landscape standards	Develop additional educational campaigns to encourage drought-resistant native landscaping and design. Work with landscape companies and homeowner associations to educate and incentivize drip irrigation and low fertilizer/pesticide management techniques. Adopt policies which allow homeowners to remove water-intensive lawns.
NS2.3	Stormwater runoff pollution reduction	Expand existing capacity to reduce pollution in stormwater runoff of both private and public projects.
NS2.4	New stormwater development plan	Align with existing programs to replace outdated stormwater infrastructure and encourage green stormwater infrastructure that utilizes low impact development (LID) techniques to protect water quality.
NS2.5	Rainwater reuse education	Educate the Gig Harbor community on the financial and environmental benefits of reusing rainwater. Continue to support rain garden education programs and classes.
NS2.6	Reclaimed water program	Conduct a needs assessment and build capacity for the reclaimed water program, building on existing City efforts.

Strategy 3: Protect and restore valuable natural resources that sequester carbon.

NS3.1	Carbon-sequestering natural resource protection	Protect and restore natural resources that sequester carbon and provide buffers during flooding events, such as wetlands, estuaries, and forests.
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Community Resilience

Goal: Ensure that Gig Harbor residents are prepared for current and future climate impacts.

Action ID	Action Short Name	Action Description
Strategy 1: Increase community resilience to climate impacts.		

CR1.1	Energy-resilient critical facilities	Increase energy resilience of critical facilities through battery storage and low carbon alternative backup generators.
CR1.2	Wildfire smoke and public health awareness	Look to Puget Sound Clean Air Agency guidelines to further educate residents on HVAC filters, use of masks, and other safety tips during periods of low air quality and increased wildfire smoke, especially for vulnerable populations such as the elderly or those facing health disparities.
CR1.3	Encourage adaptation upgrades	Offer rebate and incentive programs in the community to encourage commercial and residential adaptation measures (e.g., cool roofs, green roofs, cool pavement, ceiling fans, air filters). Build awareness of other state and regional incentive programs and offer stronger incentives for low-income residents.

Strategy 2: Prepare infrastructure and services for climate change.

CR2.1	Climate emergency communication and resources	Update Gig Harbor's emergency management plan to ensure streamlined communication is developed for quick deployment during climate emergencies and to protect vulnerable populations. Prepare for emergencies by adding additional community cooling centers and air shelters in case of extreme heat and floods.
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Strategy 3: Prepare for sea level rise and coastal erosion.

CR3.1	Sea-level rise and coastal resiliency	Secure existing coastal infrastructure in flood zones and consider new zoning restrictions to limit development in areas at risk of flooding from increased wave strength and higher tides due to sea-level rise.
CR3.2	Coastal wetland and park expansion	Expand wetlands and waterfront parks to mitigate flood risk and respond to the rising intensity and frequency of coastal storms.

Implementation

The City of Gig Harbor will coordinate to ensure the CAP is implemented to meet desired outcomes through ongoing oversight. The City will continue allocating staff resources and budget to ensure successful CAP implementation. Key activities and responsibilities of departments include:

- **Community Development Department:** Fundraising for capital projects, updating regulations, and providing updates to City Council, City Administrator, and Mayor.

- o **Planning Division:** Measuring outcomes and long-range strategic planning (reflecting CAP goals and actions in comprehensive plan policy updates).
- o **Building Division:** Adoption, implementation, and oversight of building and construction regulations.
- **Public Works Department:** Managing budgets and fundraising for capital projects, maintaining or retrofitting street lighting, pedestrian projects, etc., integration with public works standards, and GIS data management.
 - o **Parks Division:** Integration with the PROS Plan.
 - o **Utilities:** Partner with Pierce County on solid waste, recycling, and composting

Quick Wins

There are a number of actions which can be reasonably accomplished within the next five years, or through non-project regulatory changes:

Focus Area	Action ID	Action Short Name
Crosscutting & Municipal	CC3.1	Climate considerations in government
Transportation	TR2.1	Regional public transportation
Transportation	TR2.2	Bike infrastructure
Transportation	TR2.3	Curb management
Transportation	TR2.4	Promote dense, mixed use, and transit-oriented development
Natural Systems	NS1.1	Urban Forestry Management Plan and tree planting incentive program
Natural Systems	NS2.1	Native vegetation protection
Natural Systems	NS3.1	Carbon-sequestering natural resource protection

Please do not hesitate to reach out with any questions about the plan or planning process.

CLIMATE ACTION PLAN SUMMARY

Gig Harbor's Climate Action Plan (CAP) was developed through a robust analysis and strategic planning process that incorporated the most up-to-date climate science, regional best practices, City staff feedback, and community engagement. In alignment with neighboring King County communities, Gig Harbor has set a goal **to reduce community greenhouse gas (GHG) emissions by 95% by 2050, from a 2019 baseline**, with interim targets of 45% reduction by 2030 and 70% reduction by 2040. This CAP highlights our City's past climate and sustainability action, while also introducing a framework to achieve further emissions reductions and community resiliency.

GIG HARBOR'S VISION

This plan identified and will pursue actions that reduce greenhouse gas (GHG) emissions and build resilience to climate change in Gig Harbor through six distinct, priority focus areas (presented below).

Table 1. Focus Areas and Visions

	Focus area	Vision
	Crosscutting & Municipal	Community members and City staff participate in local climate action to reduce community and municipal GHG emissions.
	Buildings & Energy	Residents of Gig Harbor work to reduce building emissions through energy efficiency, building electrification, and renewable energy.
	Transportation	Local transportation systems include accessible multimodal options, electric vehicles, and safe cycling and pedestrian infrastructure.
	Consumption & Disposal	The community reduces waste and greenhouse gas emissions generated from consumption and disposal of goods and materials.
	Natural Systems	The City fosters a climate resilient natural landscape by preserving and expanding vital habitats, ecosystems, and natural resources, and conserving water resources.
	Community Resilience	All Gig Harbor residents are prepared for current and future climate impacts, especially those disproportionately affected by the effects of climate change.



GIG HARBOR **CLIMATE ACTION PLAN**

Adopted **TBD**

MESSAGE FROM THE MAYOR AND CITY ADMINISTRATOR

The City of Gig Harbor takes great pride in its very engaged citizenry, many of whom care deeply about the resiliency of their city and the greater Puget Sound region. The last few years have brought a noticeable shift in climate-related events, felt in Gig Harbor as unprecedented heat waves, more frequent snowstorms, and reduced air quality through seasonal wildfires.

The City of Gig Harbor recognizes the importance of planning for climate change and wants to do its part to mitigate climate change and its potential effects. As such, the City has undertaken the responsibility of climate action planning at the local level. In January 2022, the Gig Harbor City Council adopted the City of Gig Harbor Two-Year Strategic Plan 2022-2023, which included priorities to promote environmental sustainability and preserve Gig Harbor's natural beauty by forming a climate action committee, incorporating climate change into the City's Comprehensive Plan, and adopting a climate action plan. The City has made great strides on these actions:

- Staff convened the Climate Change Comprehensive Plan Amendment Committee (CCCPAC), a group of internal and external stakeholders led by City staff throughout the summer of 2022. The group received presentations from regional subject matter experts in climate action planning and provided feedback and guidance on an amendment to the Comprehensive Plan.
- In July 2022, the City was awarded the Early Implementation Climate Planning Grant from the Washington State Department of Commerce Growth Management Services. The grant supports work that incorporates climate action elements into the Comprehensive Plan periodic update.
- In October 2022, the City contracted with Cascadia Consulting Group to develop the Climate Action Plan.
- The proposed amendment crafted by the CCCPAC added climate change goals to the Comprehensive Plan for the first time. The amendment was adopted in November 2022.

The City of Gig Harbor is pleased to present its first ever Climate Action Plan, which represents the City's commitment to climate action through policy change and infrastructure investments. These changes and investments will positively impact generations to come.

The Gig Harbor Climate Action Plan was developed through quantitative and qualitative approaches, including greenhouse gas emissions analysis, strategy evaluation, and soliciting input from Gig Harbor residents, visitors, and regional stakeholders. We hope the goals and aspirations of this plan inspire future leaders to sustain and improve upon this effort.

ACKNOWLEDGEMENTS

The City of Gig Harbor thanks its community for their feedback and collaboration throughout the Climate Action Plan (CAP) development process. Special thanks to those community members who participated in the workshop, and/or took the online survey.

GIG HARBOR CITY COUNCIL

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 - Jeni Woock
 - Roger Henderson
 - Brenda Lykins
 - Mary Barber
 - Julie Martin
 - Le Rodenberg
 - Seth Storset
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PLANNING DEPARTMENT

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 - Cindy Andrews, Planning Technician
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CLIMATE CHANGE COMPREHENSIVE PLAN AMENDMENT COMMITTEE (CCCPAC)

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 - Bri Ellis, Former Gig Harbor Stormwater Engineering Technician
 - Carl de Simas, Gig Harbor Community Development Director
 - Georgina Armstrong, Former Gig Harbor Parks Commission
 - Jason Gano, Pierce County Master Builders Association
 - Jason Jordan, Port of Tacoma
 - Jeff Langhelm, Gig Harbor Director of Public Works
 - Jeni Woock, City Council Position 1
 - Jon Ashlock, Gig Harbor Design Review Board
 - Kyla Wilson, Pierce County Planning and Public Works
 - Mike Simmons, Gig Harbor GIS Coordinator
 - Paul Rice, Gig Harbor Building Official and Fire Marshal
 - Robert Soltess, Gig Harbor Planning Commission
 - Roger Henderson, Gig Harbor City Council Position 2
 - Ryan Redmond, Peninsula Light
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ACRONYMS AND KEY TERMS

Climate Action Plan (CAP)	A comprehensive roadmap that outlines specific strategies and actions to reduce greenhouse gas emissions and adapt to climate change impacts.
Climate change	The long-term change in global and regional climate patterns due to increased levels of atmospheric carbon dioxide and other greenhouse gases produced by human activities such as using fossil fuels like coal, oil, and gas.
Climate emergency	The severe, adverse effects of climate change or an extreme weather event caused by climate change, such as wildfire, heatwaves, flooding, and drought.
Climate resilience	The ability of the built environment, ecosystems, and social systems to prepare for, respond to, and recover from climate impacts.
Commute trip reduction (CTR) program	A Washington State Department of Transportation (WSDOT) program that promotes alternatives to driving alone under the Commute Trip Reduction Law (WAC Chapter 468-63) to improve sustainability and reduce traffic congestion. Common elements of CTR programs include transportation demand management strategies such as provision of bicycle amenities, carpool and vanpool incentives, subsidies for transit fares, and implementation of flexible work schedules.
Cross-cutting	Participation by multiple parties in a common goal. For example, City staff, community members and partner organizations working together to implement the CAP.
Decarbonization	Targeted reduction of carbon dioxide and other greenhouse gases emitted into the atmosphere from fossil fuel intensive systems and infrastructure.
Electric vehicles (EVs)	Vehicles that derive all or part of their power from electricity, including: • Plug-In Hybrid Electric Vehicles (PHEVs): Vehicles that run by using a combination of electricity and use of an internal combustion engine and plug into the electric grid to derive power. • Battery Electric Vehicles (BEVs): Vehicles that run completely on electricity using a battery that can be recharged by being plugged into the electric grid.
Electrification	The transition away from using natural gas and other fossil fuels to electricity (typically generated from renewable energy sources like solar and wind), typically to power, heat, and cool homes and vehicles.
Frontline communities	Those who are most likely to be impacted by the effects of climate change. Typically include community members who face historic and current inequities, experience the earliest and most acute impacts of climate change, and have limited resources and/or capacity to adapt to impacts.

Global warming potential (GWP)	Used to describe the relative global warming impacts of different gases based on how much energy the emissions of one gas will absorb over a given period of time, relative to the emissions of carbon dioxide (CO ₂).
Greenhouse gases (GHGs)	Heat-trapping gases that warm the atmosphere such as carbon dioxide (CO ₂), methane (CH ₄), and nitrous oxide (N ₂ O).
Heat pump	An energy-efficient alternative to traditional furnaces and air conditioners that uses electricity to transfer heat from one building location to another rather than generating it.
ICLEI – Local Governments for Sustainability	A global organization focused on supporting local governments in addressing sustainability challenges. ICLEI's standards, tools, and programs have been utilized by Gig Harbor to evaluate and reduce the City's GHG emissions.
Metric ton of carbon dioxide equivalent (MTCO₂e)	A common unit of measurement that represents an amount of a greenhouse gas whose impact on climate change has been standardized to that of one unit of carbon dioxide (CO ₂), based on the global warming potential (GWP) of the gas.
Multimodal transportation	Accessible transportation through a variety of travel modes beyond single-occupancy vehicles, including pedestrian, bicycle, and public transit.
Science-based targets (SBTs)	Measurable and actionable greenhouse gas reduction targets developed by individual local governments and based on the best available climate science. These targets represent each community's equitable share of GHG reductions needed to meet the Paris Agreement's commitment of keeping average global warming below 1.5°C. There are several established methodologies used to calculate SBTs.
Transit-oriented development	Walkable, pedestrian-oriented, and densely compacted mixed-use (commercial, residential, entertainment) development centered around or located near public transit.
Vehicle miles traveled (VMT)	A metric used in transportation planning to measure the cumulative miles traveled by all vehicles in a geographic region over a period of time.

EXECUTIVE SUMMARY

Gig Harbor's Climate Action Plan (CAP) was developed through a robust analysis and strategic planning process that incorporated the most up-to-date climate science, regional best practices, City staff feedback, and community engagement. In alignment with neighboring King County communities, Gig Harbor has set a goal **to reduce community greenhouse gas (GHG) emissions by 95% by 2050, from a 2019 baseline**, with interim targets of 45% reduction by 2030 and 70% reduction by 2040. This CAP highlights our City's past climate and sustainability action, while also introducing a framework to achieve further emissions reductions and community resiliency.



Figure 1. Gig Harbor at sunset

The actions that make up this plan will provide a roadmap to prepare the City for climate risks, reduce our collective impact on the environment, and enhance the well-being of current and future Gig Harbor residents.

Climate change is already affecting Gig Harbor through rising sea levels, extreme heat events, wildfire smoke, and increased flooding and landslide risk. As climate change continues to progress, additional sea level rise of up to 14 inches in Puget Sound is projected by 2050¹, and extreme heat events and wildfires will become even more common (Pierce County Resilience Plan). Increasing ocean acidification and higher stream temperatures also threaten aquatic plants and animals such as shellfish and salmon.

In addition to environmental impacts, Gig Harbor community health and wellbeing will also be directly affected by climate change. As critical partners of this plan, Gig Harbor **community members provided input** that shaped plan priorities and aligned strategies and actions with the community's vision for Gig Harbor. The planning team solicited input from Gig Harbor communities through an online survey and community workshop. Through this engagement, we learned that Gig Harbor community members are informed about climate change impacts and are **motivated to take climate action**.

Key themes we heard from Gig Harbor communities include:

- Support for **education and incentives** for climate action and **collective action partnerships** with the County and other regional entities for greater impact.
- A desire for the **City to provide leadership, guidance, and resources**.
- Top-priority **climate solutions** include enhanced resilience to climate impacts such as extreme heat, flooding, and wildfires; shifting to renewable energy sources; and improved materials management through sustainable consumption and moving toward zero waste.
- **Concerns regarding equity and access** for all to participate in climate action, with specific focus on addressing cost barriers.

¹ [Interactive Sea Level Rise Data Visualizations, University of Washington, 2018.](#)

- Wide support for **increased walkability** and more **bike-friendly** infrastructure and resources for Gig Harbor.

GIG HARBOR'S EMISSIONS

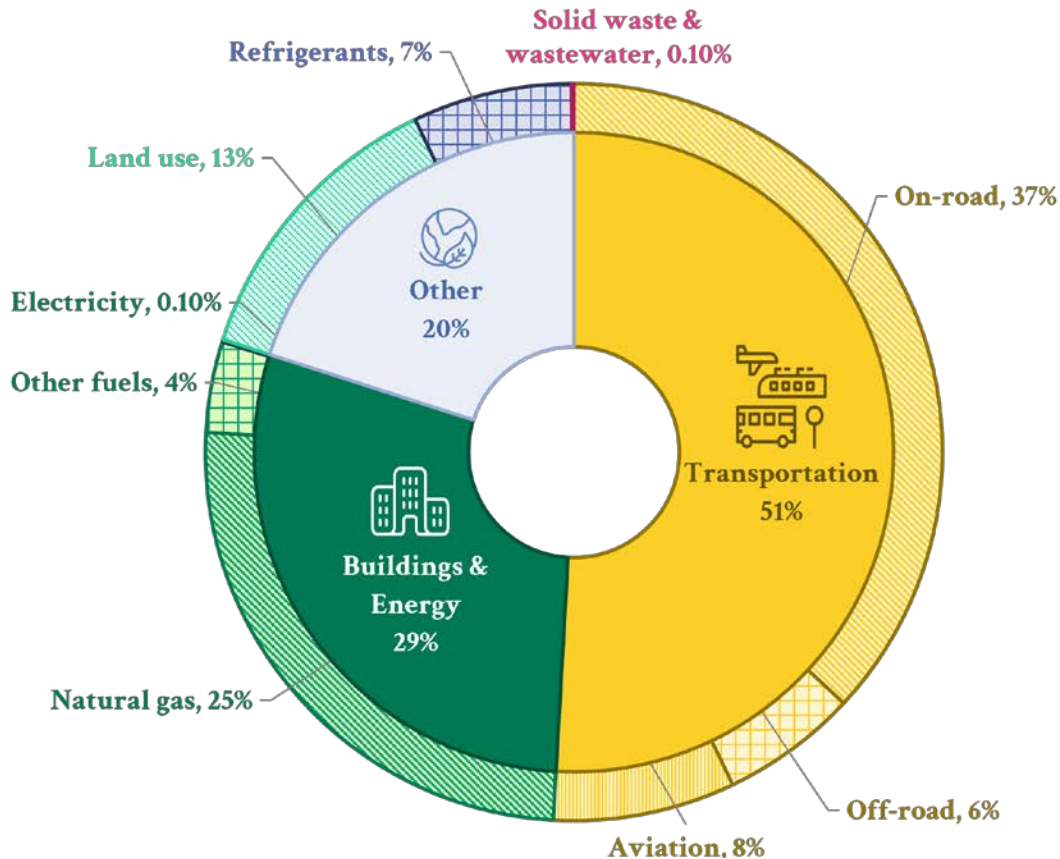
A greenhouse gas (GHG) emissions inventory was conducted for Gig Harbor based on 2019 levels and activities to inform CAP goals, targets, and metrics. An analysis of Gig Harbor's 2019 GHG emissions revealed the following key insights:

Figure 2. Gig Harbor's 2019 Greenhouse Gas Emissions Inventory

Transportation was the largest source of emissions within the community, responsible for **51% (41,743 MTCO₂e)** of Gig Harbor's emissions profile. Within transportation, on-road sources contributed 73% (**30,503 MTCO₂e**).

Buildings and energy were the second largest source of community-wide emissions, contributing **29% (23,907 MTCO₂e)** to Gig Harbor's emissions profile. Within buildings and energy, natural gas was the largest contributor emitting **88% (20,933 MTCO₂e)** of the sector's emissions.

The remaining emissions occur from **land use (13%, 11,042 MTCO₂e)**, **refrigerants (7%, 5,729 MTCO₂e)**, and **solid waste and wastewater (0.1%, 103 MTCO₂e)**.



GIG HARBOR'S VISION

This plan identified and will pursue actions that reduce greenhouse gas (GHG) emissions and build resilience to climate change in Gig Harbor through six distinct, priority focus areas (presented below).

Table 1. Focus Areas and Visions

Focus area	Vision
 Crosscutting & Municipal	Community members and City staff participate in local climate action to reduce community and municipal GHG emissions.
 Buildings & Energy	Residents of Gig Harbor work to reduce building emissions through energy efficiency, building electrification, and renewable energy.
 Transportation	Local transportation systems include accessible multimodal options, electric vehicles, and safe cycling and pedestrian infrastructure.
 Consumption & Disposal	The community reduces waste and greenhouse gas emissions generated from consumption and disposal of goods and materials.
 Natural Systems	The City fosters a climate resilient natural landscape by preserving and expanding vital habitats, ecosystems, and natural resources, and conserving water resources.
 Community Resilience	All Gig Harbor residents are prepared for current and future climate impacts, especially those disproportionately affected by the effects of climate change.

Figure 3. Our Vision for Gig Harbor

We will reduce emissions and increase community resilience to climate impacts by closely collaborating with neighboring communities. We will lead by example in our own City operations to establish Gig Harbor as a regional leader in climate action. We will educate and engage our residents and businesses to cultivate accountability and promote behavior change to address the climate crisis. Our approach to climate action will take the opportunity to reduce existing inequities in our community and improve quality of life for all Gig Harbor residents.

EMISSIONS REDUCTION TARGETS



Reduce emissions
45% by 2030, 70%
by 2040, and 95%
by 2050.



Electrify 100% of
new buildings by
2030 and 100% of
existing buildings
by 2050.



Electrify passenger,
freight, and service
vehicles 100% by
2050.



Reduce passenger
vehicle miles
travelled per
capita 10% by 2030
and 25% by 2050.



Increase
participation in
community
programs focused
on climate
resilience by 2050.



Divert recyclable
and compostable
materials 50% by
2030 and 95% by 2050.



Maintain tree
cover and
reduce tree loss
50% by 2030 and
102% by 2050.



Protect land
carbon sinks
100% by 2030.



Serve all of Gig
Harbor's population by
climate emergency
response services and
departments by 2030.

STRATEGIES AND ACTIONS AT-A-GLANCE

The following tables introduce targets, strategies, and key actions for the six CAP focus areas. Sector-specific targets and metrics depict what is needed to reach the City's overarching emissions reduction commitment, and strategies and key actions illustrate the City's pathway towards meeting these targets. For a complete list of all actions, see Strategies & Actions Matrix starting on page 31.

Cross-cutting & Municipal

Goal: Reduce community and municipal GHG emissions through internal City policies and initiatives and by encouraging community members and City staff to participate in local climate action.



Targets & Metrics	Strategies	Key Actions
- Reduce emissions 45% by 2030. - Reduce emissions 70% by 2040. - Reduce emissions 95% by 2050.	- Engage the community in climate action. - Reduce GHG emissions from municipal operations. - Integrate climate change into City planning & decision-making. - Increase participation in regional and local climate outreach and advocacy.	CC1.3: Climate partnerships and collaboration CC2.2: Municipal vehicle electrification CC3.1: Climate considerations in government CC3.2: Green, affordable housing

Buildings & Energy

Goal: Reduce building emissions through energy efficiency, building electrification, and renewable energy.



Targets & Metrics	Strategies	Key Actions
- Electrify 100% of new buildings by 2030 and 100% of existing buildings by 2050. - Increase local solar 100 MW by 2030.	- Transition to renewable building energy. - Reduce energy use in new and existing buildings.	BE1.1: Heat pump program expansion BE1.3: WA State Building Code compliance BE1.4: Green Power promotion

Transportation

Goal: Reduce GHG emissions from transportation by expanding the use of electric vehicles, increasing multimodal transportation options, and improving cycling and pedestrian infrastructure.



Targets & Metrics	Strategies	Key Actions
Reduce passenger vehicle miles travelled per capita 10% by 2030 and 25% by 2050.	- Transition to non-fossil fuel vehicles & equipment. - Reduce vehicle travel. - Reduce aviation emissions.	TR1.1: Public EV Infrastructure Plan TR2.1: Regional public transportation

- Electrify passenger, freight, and service vehicles **100%** by 2050.
- Decarbonize offroad equipment **50%** by 2040.

- **TR2.4:** Dense, mixed use, and transit-oriented development

Consumption & Disposal

Goal: Reduce community waste and the GHG emissions generated from consuming and disposing of goods and materials.



Targets & Metrics	Strategies	Key Actions
• Divert recyclable and compostable materials 50% by 2030 and 95% by 2050.	• Reduce waste generation & divert waste from landfills. • Produce and consume food sustainably.	• CD1.2: Phase-in mandatory composting/recycling • CD1.3: Solid waste emissions reduction • CD2.2: Food waste reduction plan

Natural Systems

Goal: Foster climate resilient natural landscape by conserving water resources and preserving and expanding vital habitats, ecosystems, and natural resources.



Targets & Metrics	Strategies	Key Actions
• Maintain tree cover and reduce tree loss 50% by 2030 and 102% by 2050. • Protect land carbon sinks 100% by 2030.	• Increase urban tree canopy and expand community green spaces. • Promote water conservation and enhance water system resiliency. • Protect and restore valuable natural resources that sequester carbon.	• NS1.1: Urban Forestry Plan and tree planting incentive program • NS2.1: Native vegetation protection • NS2.4: New stormwater development plan • NS3.1: Carbon-sequestering natural resource protection

Community Resilience

Goal: Ensure that all Gig Harbor residents are prepared for current and future climate impacts.



Targets & Metrics	Strategies	Key Actions
• Serve all of Gig Harbor's population by climate emergency response services and departments by 2030. • Increase participation in community programs focused on climate resilience by 2050.	• Increase community resilience to climate impacts. • Prepare infrastructure & services for climate change. • Prepare for sea level rise and coastal erosion.	• CR1.2: Wildfire smoke and public health awareness • CR1.3: Encourage adaptation upgrades • CR2.1: Climate emergency communication and resources • CR3.2: Coastal wetland and park expansion

INTRODUCTION



Figure 4. Gig Harbor Lighthouse

Located on Gig Harbor Bay in Puget Sound, the City of Gig Harbor has historical roots in commercial fishing and still maintains a deep community connection to the Harbor. This lasting tie to the water, beginning with the Puyallup Tribe, or Swiftwater People, remains today as a setting of recreation, work, and community connection.² Gig Harbor's active and quickly-growing population is supported by the community's thriving independent businesses, access to outdoor recreation and parks, and proximity to metropolitan areas, like the nearby City of Tacoma. For the 12,000 residents of Gig Harbor, climate change stands as one of most pressing issues today. Climate impacts threaten the City's livelihood, natural resources, and unique community character, particularly with regards to sea level rise, extreme heat, flooding, and coastal erosion.

Recognizing the importance of reducing our environmental impact and serving as a leader in climate action, Gig Harbor has already taken steps to promote environmental stewardship and respond to climate change. Organizations like Harbor WildWatch and the Key Peninsula-Gig Harbor Islands Watershed Council provide the community with education and outreach on critical environmental issues. Gig Harbor has supported regional emissions reduction goals and has considered climate impacts in future planning and development activities. Most recently, the City convened a **Climate Change Comprehensive Plan Amendment Committee (CCCPAC)** to develop actionable climate goals during the City's 2022 comprehensive plan update process.

Effective climate action deeply considers local climate vulnerabilities and community needs, while taking bold action to address the global climate crisis. Using the power of local climate action, this GHG emissions reduction and climate adaptation strategy will allow Gig Harbor to maintain a safe, healthy, and sustainable community for future generations. The strategies and actions in this plan work in tandem with regional and state goals to provide a pathway for Gig Harbor's future planning and that of peer cities.

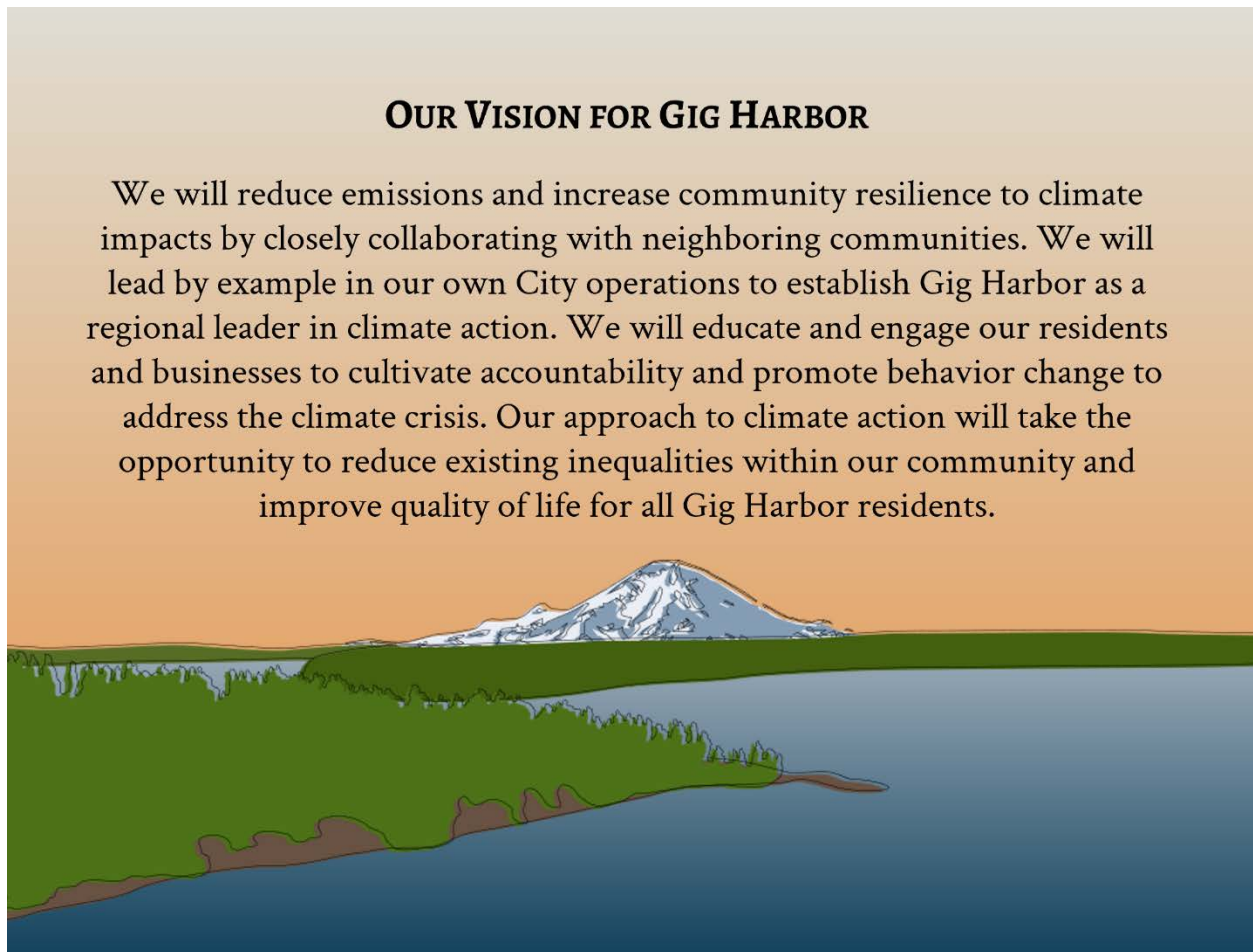
WHY A CLIMATE ACTION PLAN?

This **Climate Action Plan (CAP)** was initiated by the City Council, stewarded by the CCCPAC, and co-developed with internal and external stakeholders to reflect the community's vision of a resilient and thriving city, both now and in the future. The document weaves strategies and actions specific to Gig Harbor, demonstrating the City's commitment to and leadership in climate action, while maximizing co-benefits to both the local community and global climate. Co-benefits are those actions or infrastructure that serve to accomplish more than one climate action goal. The CAP reinforces the goals set by the Gig Harbor

² *About Gig Harbor*. Retrieved from Gig Harbor "The Maritime City": <https://www.visitgigharborwa.com/who-we-are>

Comprehensive Plan and provides a roadmap to work towards our vision of a more resilient, sustainable, and equitable future for all residents of Gig Harbor.

Figure 5. Gig Harbor's Climate Action Plan Vision



GIG HARBOR CLIMATE ACTION TO DATE

Gig Harbor's commitment to environmental leadership and stewardship began decades before the development of this plan. The timeline below depicts our history of climate action.

Figure 6. Timeline of Climate Action



CAP DEVELOPMENT & COMMUNITY ENGAGEMENT

The CAP planning process began with a 2019 **communitywide GHG inventory** to understand baseline GHG emissions sources and inform the development of CAP.³ The City developed focus areas, strategies, and actions based on a strategic, multi-step process to meet established CAP **goals and targets**. The project team built an initial strategies and actions list through a policy analysis of nearby jurisdictions, regional climate efforts, and the creation of new actions to meet community priorities. Next, the project team tailored these actions to be specific to Gig Harbor's climate risks, build on previous City efforts, and integrate innovative solutions from across the region. The City used findings from the inventory report in addition to community feedback to identify **impactful, community-supported actions** that align with Gig Harbor's vision.

Throughout the CAP development process, community engagement played a critical role in shaping CAP priorities and ensuring that strategies and actions align with the community's vision for Gig Harbor. To plan for key community engagement activities and touchpoints, the planning team developed a **Community Engagement Plan**. This plan outlined a strategic framework for engaging Gig Harbor communities, including frontline communities and internal stakeholders.



Figure 7. Gig Harbor Trolley

The Community Engagement Plan identified the following **engagement goals**:

- Create a baseline understanding around climate change impacts and creatively solicit feedback without overwhelming Gig Harbor communities.
- Gather community perspectives and feedback on key elements of the plan that are representative of the Gig Harbor community.
- Build City and communitywide support and buy-in to meet shared priorities identified by the City and Gig Harbor communities and guide implementation.

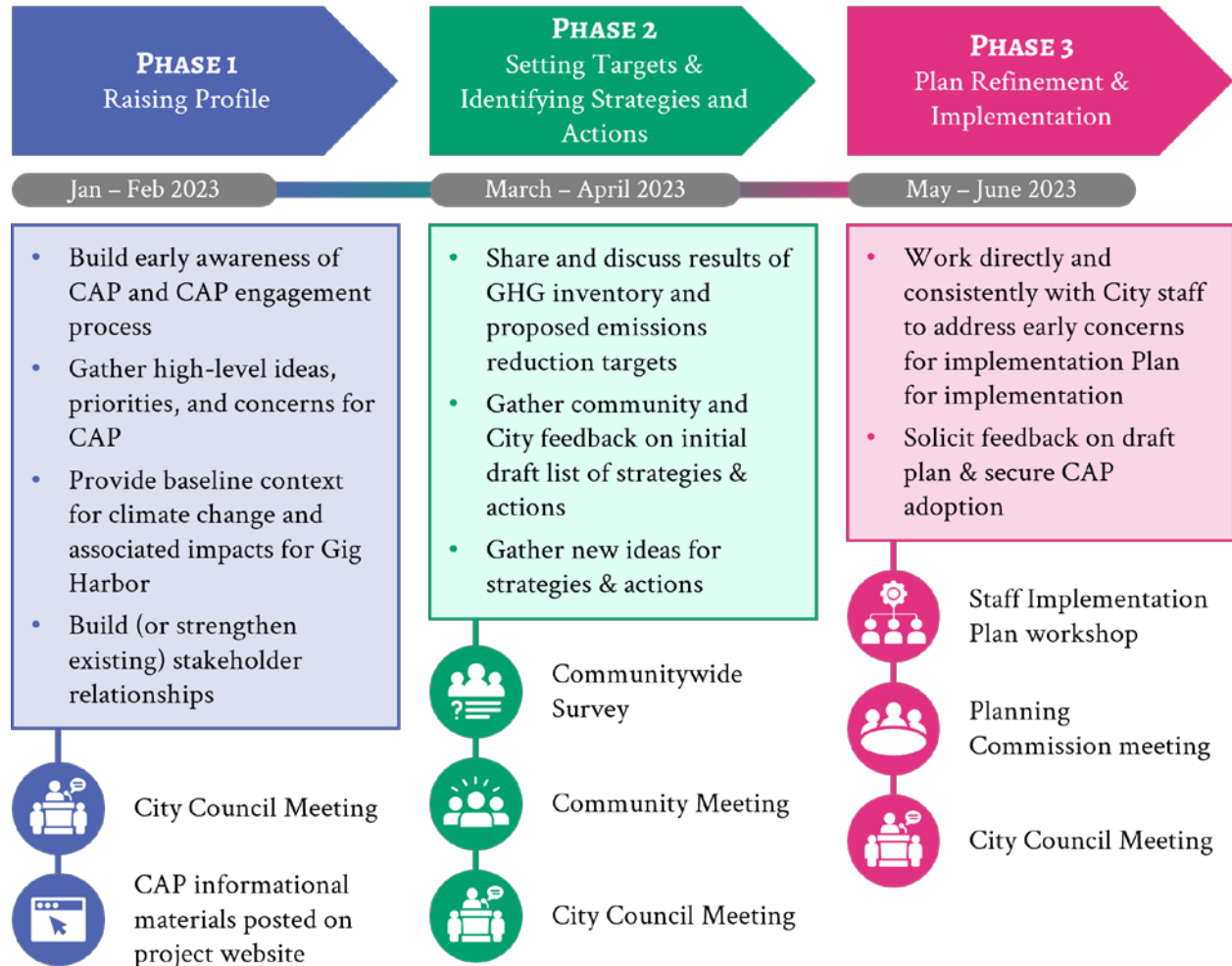
ENGAGEMENT ACTIVITIES

The planning team engaged the Gig Harbor community at three critical points within the CAP development process (see Figure 8 below). Activities included a communitywide survey, community meeting, and City

³ The baseline inventory year was strategically selected to be 2019 because it is the most recent year prior to the COVID-19 pandemic and is therefore the most representative of “normal” community emissions.

staff implementation workshop. In addition, the final CAP was presented for discussion at public meetings with the Planning Commission, City Council, and the public.

Figure 8. Key Engagement Activities



COMMUNITY SURVEY

The community survey gathered community feedback on CAP strategies and actions and collected new action ideas. The planning team utilized this survey input to refine CAP priorities, understand levels of community support, and gather detailed feedback on draft strategies and actions.

The survey was published on the project webpage and promoted through City social media and newsletters. It was open for approximately three weeks (March 8 – 31, 2023) and received 117 survey responses.⁴

COMMUNITY MEETING

The community meeting was designed to build on the momentum from the communitywide survey and was the first live feedback event for the Gig Harbor CAP. At the event, the planning team shared an overview of

⁴ www.cityofgigharbor.net/776/Climate-Action-Plan

the CAP planning process, previewed GHG inventory results, and broke participants out into small groups to gather detailed feedback on proposed strategies and actions.

The online community meeting was held on Wednesday, March 29th, 2023 from 5:30 to 7 pm through Zoom. The workshop was attended by 17 community members.

STAFF IMPLEMENTATION WORKSHOP

Targeted outreach to key internal stakeholders, such as City Staff, City Council, and the Planning Commission included a Staff Implementation Workshop and two Council and Planning Commission briefings. The Staff Implementation Workshop gathered City Staff input on strategies and actions, identified key considerations for implementation based on departments, such as lead implementor, potential funding sources, timeframe, opportunities for collaboration within the City and with outside partners, and sequencing.

The City Staff Implementation Workshop was held in-person on Thursday, May 18, 2023, from 10 am – 12 pm. Ten total staff from Planning, Engineering, Stormwater, Code Enforcement, and Building departments attended the workshop.

WHAT WE HEARD

Figure 9 below shares key themes, priorities, concerns, and action-specific feedback heard directly from Gig Harbor communities through the engagement process. Gig Harbor community members had strong consensus across the survey and community workshop in their priorities and concerns around climate impacts.

The project team summarized and incorporated feedback gathered from the survey and community meeting into the plan. Gig Harbor City staff further refined actions during implementation planning.

Figure 9. Key Themes from Engagement



GIG HARBOR'S GREENHOUSE GAS EMISSIONS

2019 INVENTORY

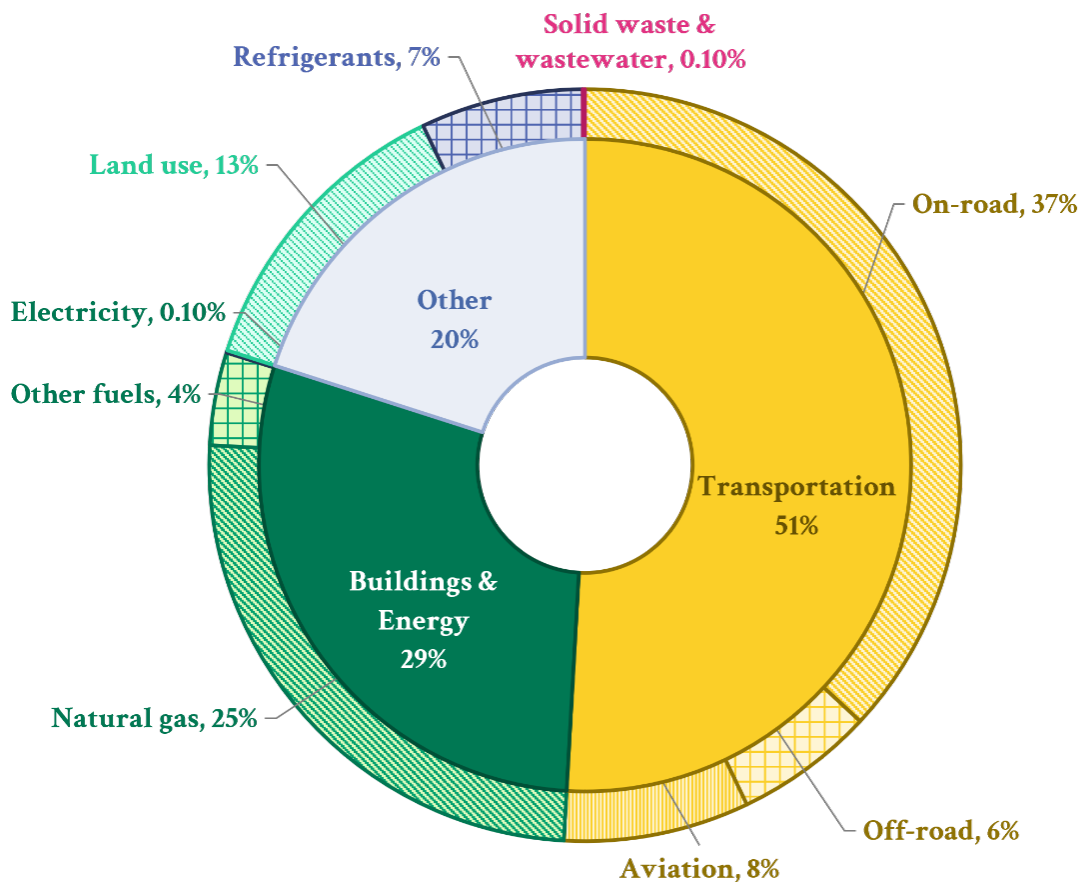
In 2019, the Gig Harbor community emitted an estimated **82,524 MTCO₂e** from transportation, building energy, land use, refrigerants, solid waste, and wastewater. These emissions are equivalent to 18,364 gasoline vehicles driven for one year. Figure 10 outlines the sectors and emissions that make up Gig Harbor's baseline 2019 emissions profile.

Figure 10. Gig Harbor's GHG Emissions Profile (2019)

Transportation was the largest source of emissions within the community, responsible for **51% (41,743 MTCO₂e)** of Gig Harbor's emissions profile. Within transportation, on-road sources contributed 73% (**30,503 MTCO₂e**).

Buildings and energy were the second largest source of community-wide emissions, contributing **29% (23,907 MTCO₂e)** to Gig Harbor's emissions profile. Within buildings and energy, natural gas was the largest contributor emitting **88% (20,933 MTCO₂e)** of the sector's emissions.

The remaining emissions occur from **land use (13%, 11,042 MTCO₂e)**, **refrigerants (7%, 5,729 MTCO₂e)**, and **solid waste and wastewater (0.1%, 103 MTCO₂e)**.



Gig Harbor's 2019 GHG emissions inventory includes emissions from transportation, buildings & energy, and other sources. These categories are further broken down as follows:

- **Transportation 51%**
 - **On-road (37%):** Includes passenger, light-duty, and heavy-duty vehicles (including freight and transit vehicles).
 - **Aviation (8%):** SeaTac Airport emissions scaled to Gig Harbor based on regional local income.
 - **Off-road (6%):** Includes a variety of vehicles and equipment such as those used for construction, commercial, industrial, and lawn/garden purposes.
- **Buildings & Energy 29%**
 - **Natural gas (25%):** Includes natural gas consumption used to power and heat residential, commercial, and industrial buildings in Gig Harbor.
 - **Other fuels (4%):** Includes energy from propane and fuel oil used to heat homes and buildings.
 - **Electricity (0.1%):** Peninsula Light Company (PLC), which supplies the jurisdiction with power, sources 95% of electricity production from carbon-free fuel.
- **Other 20%**
 - **Land use (13%):** Accounts for the carbon released when tree cover or vegetation is lost or converted to an alternative land type.
 - **Refrigerants (7%):** Emissions caused by the leakage of refrigerants, primarily hydrofluorocarbons (HFCs), commonly used as coolants for refrigeration equipment and air conditioning equipment.
 - **Solid waste & wastewater (0.1%):** Emissions from wastewater treatment, landfill and compost facility operations, and the decomposition of waste.

EMISSIONS REDUCTION TARGETS

In alignment with the latest climate science and community feedback, Gig Harbor is adopting targets, using a 2019 baseline, that are consistent with Pierce County and Washington State GHG emission reduction targets of:

- **Pierce County** has committed to an emissions reduction target of 45% by 2030 from a 2015 baseline, it has not yet committed to targets for 2040 or 2050.⁵
- **Washington state** has committed to emissions reduction targets of 70% by 2040 and 95% by 2050 below 1990 levels.⁶

Pierce County targets were developed through a quantitative “wedge analysis” modeling process (See **Appendix B: 2019 Greenhouse Gas Emissions Inventory Report**). The planning team referenced an available target scenario assessment for Pierce County that identified potential pathways for achieving County targets (Appendix B: 2019 Greenhouse Gas Emissions Inventory Report, GHG Emissions Reduction Targets).⁷ This analysis depicts future emission reductions that could be achieved through federal, state, regional, and local policies and strategies.

⁵ [Sustainability-2030-Pierce-Countys-Greenhouse-Gas-Reduction-Plan \(piercecountywa.gov\)](https://www.piercecountywa.gov/2022/01/20/sustainability-2030-pierce-countys-greenhouse-gas-reduction-plan)

⁶ [Tracking greenhouse gases - Washington State Department of Ecology](https://www.wa.gov/2022/01/20/tracking-greenhouse-gases-washington-state-department-of-ecology)

⁷ [2022_GeographicInventory_Report_FINAL \(piercecountywa.gov\)](https://www.piercecountywa.gov/2022/01/20/2022-geographic-inventory-report-final)

KEY EMISSIONS TAKEAWAYS

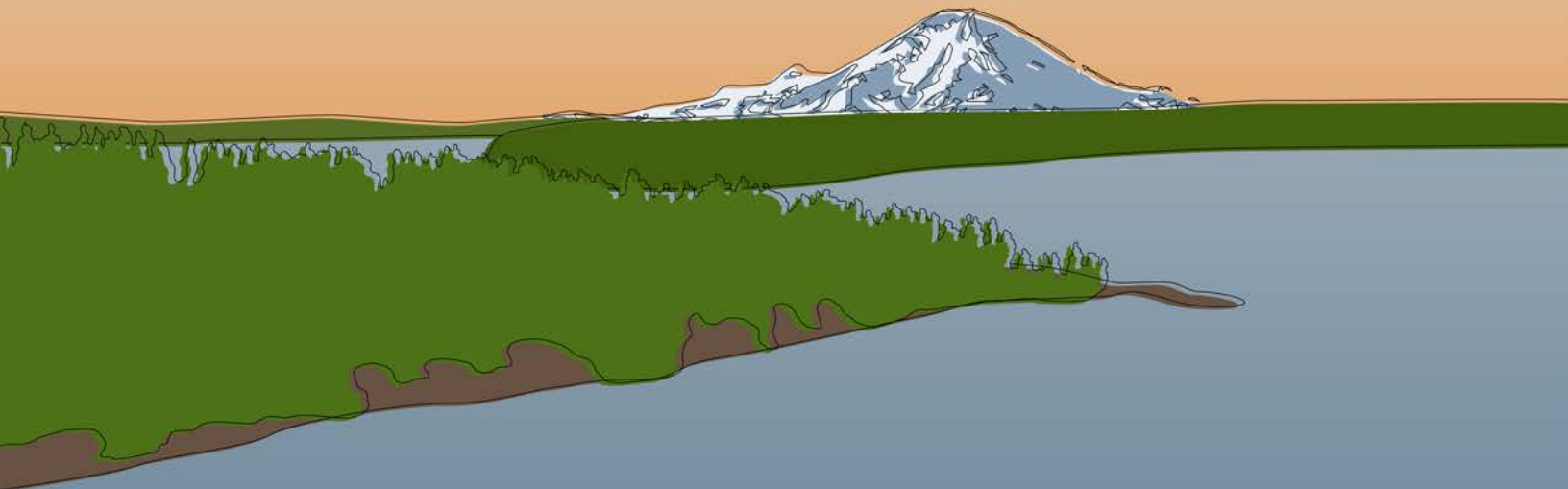
The Gig Harbor 2019 GHG emissions inventory (Figure 10) revealed the following key insights:

- **Transportation** was the largest source of emissions within the community, responsible for 51% (41,743 MTCO₂e) of Gig Harbor's emissions. Within transportation, on-road sources (from passenger and freight vehicles) were the highest contributors. It is common for transportation emissions to be the top contributor, specifically when a jurisdiction's electricity provider relies on renewable sources.
- **Building energy** was the second largest source of communitywide emissions, making up 29% (23,907 MTCO₂e) of Gig Harbor's emissions profile. Within buildings and energy, natural gas consumption was the largest contributor of GHG emissions.
- **Land use** was the third largest source of communitywide emissions, contributing 13% (11,042 MTCO₂e) to Gig Harbor's emissions. This is in line with Pierce County land use emissions, where land use emissions trend higher than neighboring counties, like King County, due to higher rates of forest land conversion for settlement.⁸
- The remaining emissions come from **refrigerant leakage** (7%, 5,729 MTCO₂e), and **solid waste and wastewater management** (0.1%, 103 MTCO₂e).

Based on the City's emissions profile, Gig Harbor is adopting a suite of goals and strategies to electrify passenger and service vehicles, reduce vehicle miles traveled, electrify buildings, increase building efficiency, and reduce loss of tree cover to drive down emissions. In addition, many CAP mitigation actions not only reduce GHG emissions but also provide co-benefits that promote climate equity and support vulnerable communities. Co-benefits of mitigation actions include improving air quality, expanding green space, promoting sustainable, affordable housing, and minimizing public health risks.

⁸ [King County, King County Greenhouse Gas Emissions, 2021](#)

Figure 11. Gig Harbor's Emissions Reduction Targets



EMISSIONS REDUCTION TARGETS



Reduce emissions
45% by 2030, 70%
by 2040, and 95%
by 2050.



Electrify 100% of
new buildings by
2030 and 100% of
existing buildings
by 2050.



Electrify passenger,
freight, and service
vehicles 100% by
2050.



Reduce passenger
vehicle miles
travelled per
capita 10% by 2030
and 25% by 2050.



Increase
participation in
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Divert recyclable
and compostable
materials 50% by
2030 and 95% by 2050.



Maintain tree
cover and
reduce tree loss
50% by 2030 and
102% by 2050.



Protect land
carbon sinks
100% by 2030.



Serve all of Gig
Harbor's population by
climate emergency
response services and
departments by 2030.

CLIMATE IMPACTS

CLIMATE CHANGE NOW

Climate change is already affecting Gig Harbor in the form of extreme heat and wildfires, changing rainfall patterns, rising sea levels, ocean acidification, lower winter snowpack, and rising stream temperatures.⁹ Average temperatures are already 1.3 degrees Fahrenheit higher than last century, punctuated by longer, hotter heat waves. Most notably, the heat dome of June 2021 saw temperatures in the region reach 30 degrees higher than average.¹⁰ Warmer winters result in lower snowpack in the region's mountain ranges, which strains summer water availability in reservoirs, lakes, and streams.¹¹ The region is also experiencing changing rainfall patterns—more frequent, heavy rainstorms—increasing damaging flooding and landslides.¹²

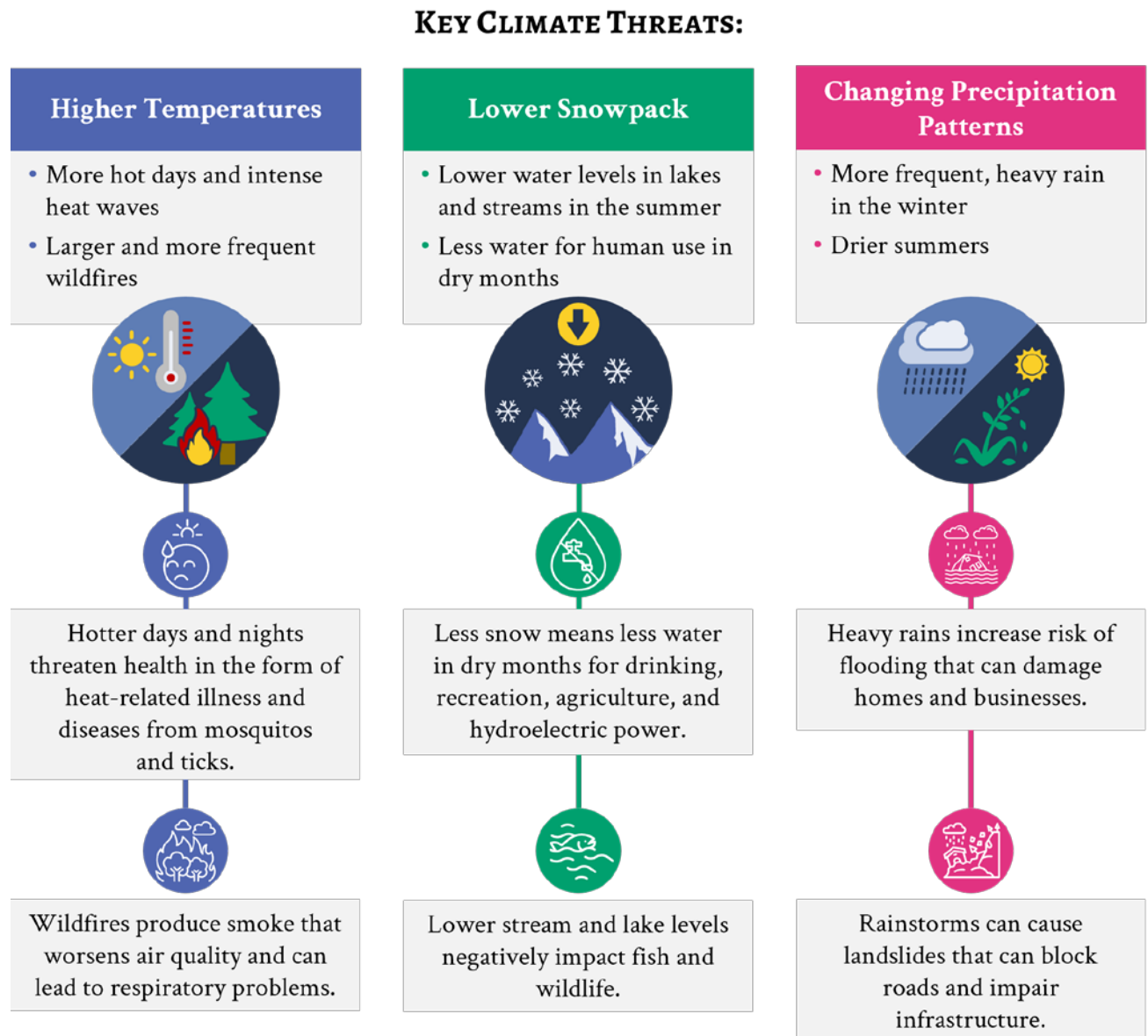
⁹ [Pierce County Climate Change Resilience](#)

¹⁰ [Tacoma Climate Change Resilience Study \(2016\)](#)

¹¹ [Puyallup Tribe's Climate Change Impact Assessment and Adaptation Options \(2016\)](#)

¹² [Pierce County Climate Change Resilience](#), [Changes toward Earlier Streamflow Timing across Western North America](#), [Tacoma Climate Change Resilience Study](#), [State of Knowledge: Climate Change in Puget Sound](#)

Figure 12. Key Climate Threats for Gig Harbor



Gig Harbor and Sea Level Rise

As a coastal community, Gig Harbor is experiencing sea level rise—nearly eight inches over the last century, according to NOAA (Pierce County Resilience Plan), with up to 14 inches of additional sea level rise projected by 2050. The city will lose additional coastal land such as beaches, river deltas, and wetlands. This leaves Gig Harbor land vulnerable to coastal flooding, which can cause property and infrastructure damage and lead to potential displacement of residents and workers. The ocean is also becoming more acidic, which has the potential to increase shellfish toxicity via increased algae blooms—which is harmful to people who may eat toxic shellfish and a negative impact on the local economy.

CLIMATE CHANGE IN THE FUTURE

Longer, hotter summers and less rain during the summer months will make wildfires more common in the future. Higher temperatures also accelerate Olympic Peninsula glacier melt, resulting in less summer stream water and higher stream temperatures. Climate projections predict warming up to 3 degrees Fahrenheit by 2080, leading to lake closures for fishing and recreation, and the continued decline of salmon populations. Extreme precipitation is likely to increase, especially in the spring and fall, as more precipitation falls as rain instead of snow. Since record-keeping began in the Seattle area (in the 1980s), 2014 and 2017 were the only two years with more than 10 days with over an inch of rainfall. In future years, frequent heavy rainfall is expected to increase (more than 10 days a year with over an inch of rain), leading to more frequent flooding and landslides.

STRATEGIES & ACTIONS

The strategies and actions in this CAP were developed and refined based on the latest climate science, regional targets, and direct public feedback. Regional and local resources referenced for action development include the CAPs of peer cities, Puget Sound Regional Council's VISION 2050, and priorities noted by the Gig Harbor CCCPAC. Reviewing these resources helped ensure that this plan's strategies and actions will meet Gig Harbor's GHG reduction targets and align with regional efforts and climate mitigation and adaptation best practices. Strategies and actions are foundational to meeting the targets, metrics, and goals developed for each focus area, as shown in Figure 8.

Public input directly informed and guided the goals, targets, metrics, strategies, and actions in this plan. Strategies and actions aim to address major emissions sources for Gig Harbor, as well as projected climate impacts.

Figure 13. Strategies and Actions Framework



MITIGATION AND ADAPTATION

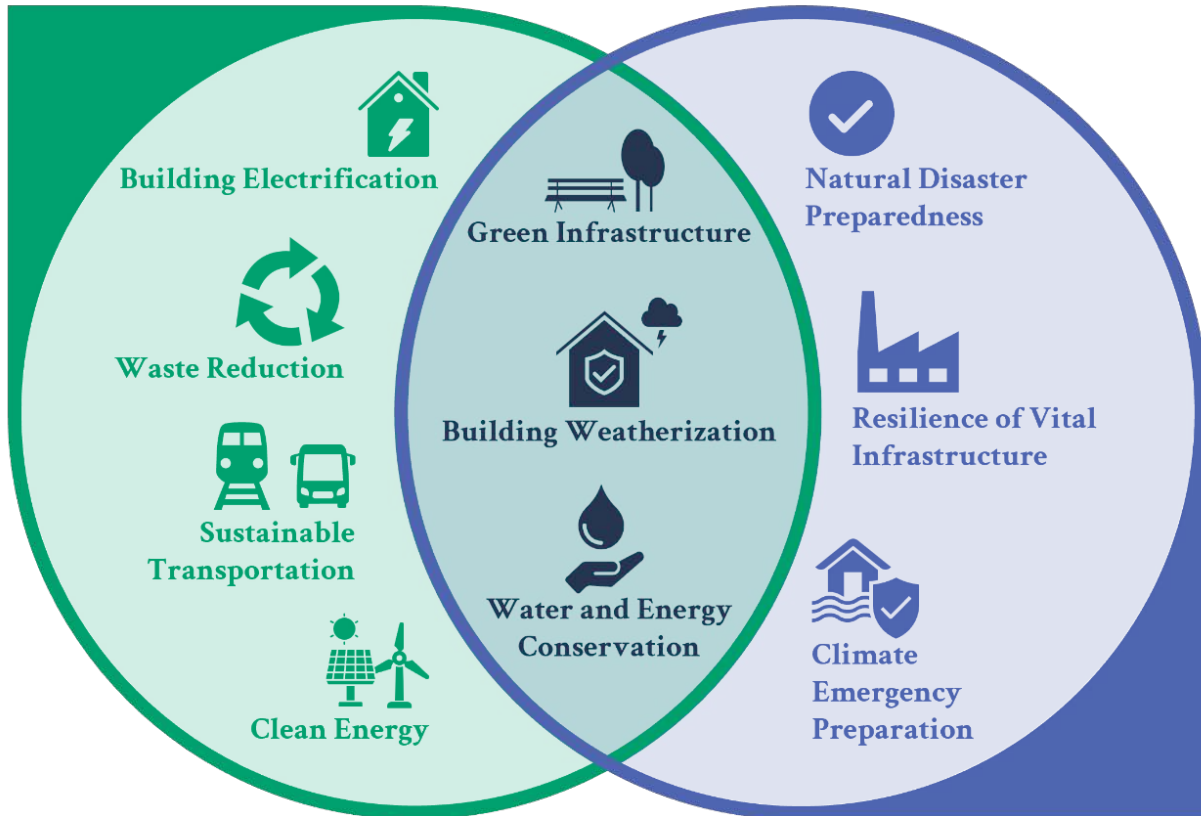
To achieve our vision for Gig Harbor, this CAP includes both climate mitigation and adaptation strategies and actions. **Both are necessary for a sustainable and resilient future.** Wherever possible, the plan includes actions that provide both mitigation and adaptation benefits, such as those in the center of Figure 14 below.

- **Mitigation** actions address the **cause** of climate change by reducing GHG emissions and increasing carbon “sinks” to store these gases.
- **Adaptation** actions address and manage the **impacts** of climate change by protecting and building resilience for vulnerable social and biological systems. In addition to mitigation efforts, we must prepare for and adapt to the unavoidable impacts of climate change we are already experiencing.

Figure 14. Mitigation and Adaptation Strategies

Mitigation

Address the cause



Adaptation

Address the impacts

CENTERING EQUITY

Gig Harbor's climate action has implications beyond its own city border due to the global nature of GHG emissions. Climate change disproportionately affects frontline communities on both a local and global scale. In Gig Harbor, these communities include Black, Indigenous, Hispanic or Latino, people with low or no income, unhoused individuals, youth, immigrants, people with disabilities, people with limited English proficiency, and other identities who face current or historic inequities. Incorporating climate equity principles and understanding the social and racial impacts of proposed climate actions will improve the equitable distribution of benefits (e.g., improving public health and increasing access to services) and reduce disparities. In committing to climate action, the City is working towards reducing disproportionate climate impacts on at-risk local, regional, and global populations.

Climate change is already impacting life in Gig Harbor, and some groups of people experience climate impacts more severely, making it more difficult to adapt. In addition to race and income as determinants of risk for climate impacts, other groups of people experience specific threats from climate change. Older

adults, babies and small children, pregnant people, people with pre-existing conditions, differently abled individuals, people with language and literacy barriers, and outdoor workers are at higher risk of negative health and wellbeing outcomes from climate hazards such as extreme heat and flooding. The Gig Harbor CAP includes actions that promote resilience for the whole community and prioritizes actions with shared benefits, ensuring these benefits are accessible for and align with existing priorities of overburdened communities. Equity was included as a criterion in the multi-criteria analysis of proposed actions.

Public engagement efforts ensured that the community had the opportunity to provide input on the CAP through a survey and a community meeting. However, the engagement opportunities were both held virtually; there was no targeted outreach to difficult-to-reach communities; and translation and interpretation services were not used for events or materials. It is also important to note that most survey respondents identified as white and female. These engagement shortcomings were considered in the development of actions and incorporation of community feedback.

MULTI-CRITERIA ANALYSIS (MCA)

The planning team reviewed potential actions through a qualitative multi-criteria analysis—a scoring system that ranks actions against a set of decision criteria. The MCA assigns qualitative numerical scores to each action for each criterion (see table below) to arrive at an overall priority score. Each criterion is scored on a 1 (low) to 5 (high) scale and criteria were weighted equally.

Table 2. MCA criteria weights and definitions

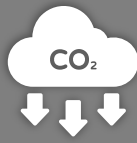
Criterion	Weight	Definition
Impact	20%	What is the scope and likelihood that the action will reduce GHG emissions or enhance resiliency? By when? Can impact be measured and tracked?
Cost	20%	What is the cost to the City?
Co-benefits	20%	Does the action support 1) public health, 2) the green economy, and 3) healthy natural systems?
Feasibility	20%	Are there regulatory, political, or technological constraints related to action implementation? Is the action adaptable to new technologies?
Equity	20%	Does the action reduce vulnerability for all populations/groups? Are benefits distributed equitably across the community?

STRATEGIES & ACTIONS MATRIX

The matrix below is organized into focus areas that represent categories of emissions reduction and adaptation priorities. The **Implementation Plan and Matrix** starts on page 46 provides details on the City's plan for implementing these actions.

STRATEGIES & ACTIONS ICON LEGEND

These icons indicate actions which are impactful for each MCA criterion.

				
Impact	Cost	Co-benefits	Feasibility	Equity
The action has high potential to reduce emissions and/or increase resiliency.	The action is relatively low in cost.	The action has high co-benefits of improving public health, the green economy, and natural systems.	The action is realistic and easy to implement.	The action reduces vulnerabilities for frontline communities, and action benefits are distributed fairly.



CROSSCUTTING & MUNICIPAL

The Crosscutting & Municipal focus area includes measures to reduce community and municipal GHG emissions through cross-sectoral activities and internal City policies and initiatives.

Goal: Reduce community and municipal GHG emissions through internal City policies and initiatives and by encouraging community members and City staff to participate in local climate action.

Metric	2030 Target	2050 Target
Reduce overall City emissions (% reduction)	45% below 2019 baseline	95% below 2019 baseline

Action ID	Action Short Name	Action Description	Icons
Strategy 1: Engage the community in climate action.			
CC1.1	Climate and sustainability in schools	Partner with local schools to educate youth on climate and sustainability issues. Encourage energy efficiency and electrification of building operations, and support waste reduction and recycling in schools.	
CC1.2	Climate education and awareness	Expand climate education campaigns to encourage the Gig Harbor community to advocate for state and federal legislation that supports local climate mitigation and adaptation efforts. Develop a climate outreach and education campaign or program to support ongoing community engagement in climate action by creating initiatives such as addressing misinformation in energy use or building climate pledge programs. Maintain a publicly available platform to track CAP and GHG reduction progress.	
CC1.3	Climate partnerships and collaboration	Partner with neighboring cities and other Pierce County groups to advance regional initiatives to improve climate mitigation measures and increase community resilience to climate change.	

Action ID	Action Short Name	Action Description	Icons
Strategy 2: Reduce GHG emissions from municipal operations.			
CC2.1	City carpool and commute reduction programs	Reduce emissions from City staff commuting by implementing an incentive program for carpooling, biking, or taking public transportation to work. Preserve and expand flexible scheduling and remote work options for staff.	
CC2.2	Municipal vehicle electrification	Transition the municipal vehicle fleet to all electric.	
CC2.3	Municipal solar installation	Retrofit City buildings with on-site solar and renewable energy storage systems.	
Strategy 3: Integrate climate change into City planning & decision-making.			
CC3.1	Climate considerations in government	Consider climate impacts when reviewing or approving major City developments, infrastructure changes, and policies. Ensure all City plans (e.g., Comprehensive Plan, Emergency Management Plan) account for climate change and its impact on vulnerable communities. Incorporate environmental justice criteria and priorities into zoning, land use planning, permitting policies, and development of new projects.	
CC3.2	Green, affordable housing	Review and update land use, zoning, and planning policy to prioritize the development of green, affordable housing. Utilize equitable, transit-oriented development planning strategies to allow for broader housing types in single family zones.	
Strategy 4: Increase participation in regional and local climate outreach and advocacy.			
CC4.1	Collaboration with local tribes	Work with local tribal groups to share resources and ideas on climate change issues.	



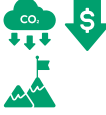
BUILDINGS & ENERGY

The Buildings & Energy sector is the second highest contributor to Gig Harbor's GHG emissions, accounting for 29% in 2019. These emissions come from energy used to power, heat, and cool buildings in our community. The strategies and actions within this focus area are designed to facilitate the use of renewable energy sources, while also promoting more efficient energy use in new and existing buildings.

Goal: Reduce building GHG emissions through energy efficiency, building electrification, and renewable energy.

Metric	2030 Target	2050 Target
Increase local solar (total new MW)	100 MW	250 MW
Electrify new buildings (% fossil fuel use converted to electric)	100%	100%
Electrify existing buildings (% fossil fuel use converted to electric)	20%	100%
Reduce energy use in existing buildings (% reduction in energy use)	25%	45%

Action ID	Action Short Name	Action Description	Icons
Strategy 1: Transition to renewable building energy.			
BE1.1	Heat pump program expansion	Partner with Peninsula Light Company to expand regional electric heat pump incentives to replace natural gas-powered furnaces and increase energy efficiency in City and residential buildings. Action will focus particularly on replacing expensive oil and gas heating systems with efficient heat pump systems and serving low-income residents.	
BE1.2	Contractor incentive & training program	Work with regional jurisdictions and agencies to expand upstream and midstream incentives for building electrification retrofits to local distributors and contractors. Create or promote a contractor training and/or certification program focused on efficient, electric heat pump installation.	

Action ID	Action Short Name	Action Description	Icons
BE1.3	WA State Building Code compliance	Promote transition from natural gas in new buildings by implementing building codes that align with the policies outlined by the Washington State Building Code Council.	
BE1.4	Green power promotion	Enroll City facilities and encourage businesses and residents to enroll in Peninsula Light Company's Renewable Option Program.	
BE1.5	Solar energy grid resiliency and community solar projects	Improve local energy resiliency by accelerating improvements to the energy grid and solar energy storage through subsidy and grant programs. Create incentives and explore grant opportunities to support community solar projects.	
Strategy 2: Reduce energy use in new and existing buildings.			
BE2.1	Energy efficiency retrofits	Encourage early adoption of efficiency retrofits before they are required through local or state mandates; partner with local organizations to provide and promote energy efficiency incentives. Develop free home energy audits and upgrade programs for income-eligible residents.	
BE2.2	Green Infrastructure Policy	Integrate green building guidelines into the Gig Harbor Municipal Code (GHMC). Educate City planning and permitting staff on new energy codes and methods for incentivizing decarbonization in buildings.	



TRANSPORTATION

Transportation is the highest contributor to Gig Harbor's GHG emissions, accounting for 51% in 2019. These emissions occur from on-road vehicles, such as personal vehicles or public transportation, and off-road vehicles, such as construction and agricultural equipment. The strategies and actions in the transportation focus area concentrate on transitioning away from fossil fuels to electric vehicles, reducing vehicle miles travelled, and reducing aviation emissions.

Goal: Reduce greenhouse gas emissions from transportation by expanding the use of electric vehicles, increasing multimodal transportation options, and improving cycling and pedestrian infrastructure.

Metric	2030 Target	2050 Target
Electrify passenger vehicles (% new EV vehicles sold)	65%	100%
Electrify freight/service vehicles (% new EV vehicles sold)	25%	100%
Decarbonize or electrify offroad equipment (% reduction in emissions)	20%	95%
Reduce passenger vehicle miles traveled per capita (% reduction in VMT)	10%	25%
Advocate to decarbonize aviation fuels (% reduction in fuel carbon intensity)	20%	95%

Action ID	Action Short Name	Action Description	Icons
Strategy 1: Transition to non-fossil fuel vehicles & equipment.			
TR1.1	Public EV Infrastructure Plan	Develop and implement an EV Charging Infrastructure Plan that guides expansion of EV charging capacity throughout the city. Mandate EV ready outlets in all new residential buildings and EV charging stations in newly-constructed buildings.	

Action ID	Action Short Name	Action Description	Icons
TR1.2	Community EV education	Create EV communication and outreach programs in the Gig Harbor Community that explain the benefits of EVs, rebates available for EV purchasing, charger locations, and other helpful information.	
TR1.3	Electric trolley	Transition to all-electric vehicles for the Gig Harbor Summer Trolley.	
TR1.4	Gas powered landscaping equipment phase out	Set target dates to phase out gas-powered landscaping equipment and transition to using electric equipment (lawnmowers, leaf blowers, etc.). Allocate funding for municipal battery-powered equipment upgrades and to avoid breaks due to charging needs, especially for cost burdened residents.	
Strategy 2: Reduce vehicle travel.			
TR2.1	Regional public transportation	Advocate and engage in regional opportunities to improve Gig Harbor's public transportation network, including expanding routes offered by the Pierce Transit bus system, the frequency and routes of the Summer Trolley, and electric bike or scooter ride share programs. Focus access on neighborhoods that are not currently served by transit and to services, jobs, and activities for seniors, people with disabilities, and low-income residents.	
TR2.2	Bike infrastructure	Encourage cycling by providing bicycle lockers, showers, racks, and other cycling infrastructure at commercial centers and at city workplaces.	
TR2.3	Curb management	Incentivize businesses and developers to optimize curbside areas for low-carbon travel modes (bicycles, scooters, etc.).	
TR2.4	Dense, mixed use, and transit-oriented development	Review and update land use, zoning, and planning policy to promote dense, mixed-use, and transit-oriented development and enhance options for rideshare, walking, and biking in Gig Harbor. This may include altering zoning and planning policies to integrate Transportation Demand Management (TDM) standards into Comprehensive Plan policies related to development.	

Action ID	Action Short Name	Action Description	Icons
Strategy 3: Reduce aviation emissions.			
TR3.1	Aviation industry education and advocacy	Educate residents on air travel alternatives for personal and business trips, such as regional trains or buses. Encourage local advocacy to support statewide aviation decarbonization legislation, including using sustainable aviation fuel and adoption of fuel efficiency measures.	



CONSUMPTION & DISPOSAL

Waste in landfills, particularly food waste, is a major source of methane, a GHG that is 80 times more damaging than carbon dioxide. Emissions associated with local purchasing and consumption also contribute significantly to global emissions. The following actions and strategies work to reduce waste generation, divert waste through compost and recycling, and consume sustainably.

Goal: Reduce community waste and the greenhouse gas emissions generated from consuming and disposing of goods and materials.

Metric	2030 Target	2050 Target
Divert recyclable and compostable materials (% reduction in landfill waste)	50%	95%

Action ID	Action Short Name	Action Description	Icons
Strategy 1: Reduce waste generation & divert waste from landfills.			
CD1.1	Recycling requirements in new buildings	Ensure adequate space for recycling and compost collection in new buildings.	
CD1.2	Phase-in mandatory composting/recycling	Phase in mandates for municipal, residential and commercial recycling and composting as required by the state; support businesses, building owners, and community members to comply through educational campaigns and technical assistance programs.	
CD1.3	Solid waste emissions reduction	Support state-level policies that promote packaging with the lowest lifecycle GHG emissions. Collaborate with regional waste haulers to develop plans to reduce local emissions from the collection, transport, and disposal of Gig Harbor's waste.	
Strategy 2: Produce and consume food sustainably.			
CD2.1	Garden access and creation	Support access to and the creation of community gardens at shared spaces and organizations such as schools, churches, and parks.	

Action ID	Action Short Name	Action Description	Icons
CD2.2	Food waste reduction plan	Create residential and commercial food waste reduction best practices following the release of the Washington State Food Waste Reduction Plan/Use Food Well Plan, including developing systems to track and report food donations in Gig Harbor.	



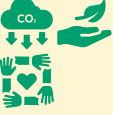
NATURAL SYSTEMS

Water and natural systems are particularly vulnerable to climate impacts. Warmer temperatures and changing precipitation patterns will cause more frequent and prolonged water shortages. Extreme storms and rains threaten to overwhelm Gig Harbor's wastewater and stormwater infrastructure, and climate impacts like flooding and wildfires will affect downstream water quality. Meanwhile, natural systems such as trees, grasses, and soils naturally store and capture carbon from the atmosphere, making them a valuable tool to combat climate change. The Natural Systems focus area strategies and actions focus on maintaining urban tree canopy, protecting carbon sinks, and water conservation.

Goal: Foster climate resilient natural landscape by conserving water resources and preserving and expanding vital habitats, ecosystems, and natural resources.

Metric	2030 Target	2050 Target
Maintain tree cover & reduce canopy loss (% reduction tree loss)	50%	102%
Protect critical areas/land carbon sinks (% area protected)	100%	100%

Action ID	Action Short Name	Action Description	Icons
Strategy 1: Increase urban tree canopy and expand community green spaces.			
NS1.1	Urban Forestry Management Plan (UFMP) and tree planting program	Support the implementation of the UFMP, including update of tree regulations, encouraging residents and property owners to expand tree planting on private property. Offer tree-awareness campaigns and classes to educate the community on tree planting best practices and develop tree planting demonstration programs. Prioritize actions that increase tree canopy, especially in areas subject to urban heat island effect and for overburdened communities.	
Strategy 2: Promote water conservation and enhance water system resiliency.			

Action ID	Action Short Name	Action Description	Icons
NS2.1	Native vegetation protection	Continue to use the best available climate science to identify and protect environmentally critical areas to protect native habitats. Engage the public in promoting native vegetation through public outreach campaigns and partner with relevant community organizations to leverage volunteers, such as Harbor Gardeners or Tacoma Tree Foundation.	
NS2.2	Water-efficient landscape standards	Develop additional educational campaigns to encourage drought-resistant native landscaping and design. Work with landscape companies and homeowner associations to educate and incentivize drip irrigation and low fertilizer/pesticide management techniques. Adopt policies which allow homeowners to remove water-intensive lawns.	
NS2.3	Stormwater runoff pollution reduction	Expand existing capacity to reduce pollution in stormwater runoff of both private and public projects.	
NS2.4	New stormwater development plan	Align with existing programs to replace outdated stormwater infrastructure and encourage green stormwater infrastructure that utilizes low impact development (LID) techniques to protect water quality.	
NS2.5	Rainwater reuse education	Educate the Gig Harbor community on the financial and environmental benefits of reusing rainwater. Continue to support rain garden education programs and classes.	
NS2.6	Reclaimed water program	Conduct a needs assessment and build capacity for the reclaimed water program, building on existing City efforts.	
Strategy 3: Protect and restore valuable natural resources that sequester carbon.			
NS3.1	Carbon-sequestering natural resource protection	Protect and restore natural resources that sequester carbon and provide buffers during flooding events, such as wetlands, estuaries, and forests.	



COMMUNITY RESILIENCE

Climate change disproportionately impacts vulnerable communities in Gig Harbor. Gig Harbor faces a variety of climate-related threats, including extreme heat, heavy rains, flooding, sea-level rise, and wildfire smoke. These impacts put our safety and health at risk, exacerbate existing inequities, and threaten our quality of life. The following strategies and actions focus on increasing resilience for both people and infrastructure to climate impacts.

Goal: Ensure that all Gig Harbor residents are prepared for current and future climate impacts.

Metric	2030 Target	2050 Target
All of Gig Harbor's population served by climate emergency response services.	All community members by 2030.	All community members by 2050.
Increase in participation in community programs focused on climate resilience.	Increase in participation by 2030.	Increase in participation by 2050.

Action ID	Action Short Name	Action Description	Icons
Strategy 1: Increase community resilience to climate impacts.			
CR1.1	Energy-resilient critical facilities	Increase energy resilience of critical facilities through battery storage and low carbon alternative backup generators.	
CR1.2	Wildfire smoke and public health awareness	Look to Puget Sound Clean Air Agency guidelines to further educate residents on HVAC filters, use of masks, and other safety tips during periods of low air quality and increased wildfire smoke, especially for vulnerable populations such as the elderly or those facing health disparities.	
CR1.3	Encourage adaptation upgrades	Offer rebate and incentive programs in the community to encourage commercial and residential adaptation measures (e.g., cool roofs, green roofs, cool pavement, ceiling fans, air filters). Build awareness of other state and regional incentive programs and offer stronger incentives for low-income residents.	

Action ID	Action Short Name	Action Description	Icons
Strategy 2: Prepare infrastructure and services for climate change.			
CR2.1	Climate emergency communication and resources	Update Gig Harbor's emergency management plan to ensure streamlined communication is developed for quick deployment during climate emergencies and to protect vulnerable populations. Prepare for emergencies by adding additional community cooling centers and air shelters in case of extreme heat and floods.	
Strategy 3: Prepare for sea level rise and coastal erosion.			
CR3.1	Sea-level rise and coastal resiliency	Secure existing coastal infrastructure in flood zones and consider new zoning restrictions to limit development in areas at risk of flooding from increased wave strength and higher tides due to sea-level rise.	
CR3.2	Coastal wetland and park expansion	Expand wetlands and waterfront parks to mitigate flood risk and respond to the rising intensity and frequency of coastal storms.	

IMPLEMENTATION PLAN

This CAP is a strategic and coordinated plan that relies on all members of the Gig Harbor community. The City must work collectively with Gig Harbor residents and communities to reduce GHG emissions and create a resilient and sustainable future. The following section provides a framework for implementing the strategies and actions outlined in this CAP.

OVERSIGHT & ACCOUNTABILITY

The City of Gig Harbor will coordinate to ensure the CAP is implemented to meet desired outcomes through ongoing oversight. The City will continue allocating staff resources and budget to ensure successful CAP implementation.

Key activities and responsibilities of departments include:

- **Community Development Department:** Fundraising for capital projects, updating regulations, and providing updates to City Council, City Administrator, and Mayor.
 - **Planning Division:** Measuring outcomes and long-range strategic planning (reflecting CAP goals and actions in comprehensive plan policy updates).
 - **Building Division:** Adoption, implementation, and oversight of building and construction regulations.
- **Public Works Department:** Managing budgets and fundraising for capital projects, maintaining or retrofitting street lighting, pedestrian projects, etc., integration with public works standards, and GIS data management.
 - **Parks Division:** Integration with the PROS Plan.
 - **Utilities:** Partner with Pierce County on solid waste, recycling, and composting

QUICK WINS

City Council requested a table of *quick wins* in addition to the more detailed implementation matrix in Appendix A. While there are a number of actions which are already in progress or ongoing, the following set of actions can be reasonably accomplished within the next five years, or through non-project policy or regulatory changes.

Focus Area	Action ID	Action Short Name
Crosscutting & Municipal	CC3.1	Climate considerations in government
Transportation	TR2.1	Regional public transportation
Transportation	TR2.2	Bike infrastructure
Transportation	TR2.3	Curb management
Transportation	TR2.4	Promote dense, mixed use, and transit-oriented development
Natural Systems	NS1.1	Urban Forestry Management Plan and tree planting incentive program

Natural Systems	NS2.1	Native vegetation protection
Natural Systems	NS3.1	Carbon-sequestering natural resource protection

MONITORING, EVALUATION & REPORTING

It is critically important to maintain climate action by tracking and reporting progress. This plan is a living document that will evolve between now and the next planned update in 2033. The **Planning Division** will monitor progress and prepare annual CAP progress reports. If these reports indicate the City is not on track to meet targets, the City may choose to strengthen or add actions as necessary. This direction will be informed by **the latest climate science, best practices, and allocated budget and staffing**. To effectively monitor, evaluate, and report on the plan, the CAP team will:

- Provide City Council and City Administrator with an **annual progress report**, alongside the Comprehensive Plan progress report.
- Prepare a **GHG inventory** every two to three years.
- **Utilize GIS data management** to track capital improvement project progress, percentage of hard surface for stormwater management, tree canopy cover, and the number and health of urban trees.
- Share progress towards CAP goals through **biennial status reports** and provide regular updates to City website for the residents of Gig Harbor.

FUNDING

Financing climate projects and initiatives may be achieved by seeking out specific funds for CAP implementation or incorporating CAP funding into existing and upcoming City projects. During implementation, the City should identify potential revenue sources or funding strategies for each CAP action. The CAP team may consider **existing funds and opportunities** to include climate action funding within a City department budget or within a project RFP. The City may also seek out **new funds** by exploring available grants at the local, state, or national level. New funding sources may also include partners interested in **co-funding** an action or introducing climate action projects in City department **budget updates**. Specific sources of funding or funding partnerships include:

- EPA implementation grants
- WA Commerce grants (2027 expected implementation grants)
- Public works collaboration on project-specific grants
- Pierce County partnerships
 - Local environmental group collaboration on project-specific grants

COMMUNITY INVOLVEMENT

Gig Harbor communities will continue to play a critical role in plan implementation. To meet goals outlined in this plan, the City will depend on continued active engagement with the community. The City will prioritize engagement synergies and collaborate with the Comprehensive Plan update, as well as look for other opportunities to engage where CAP goals align. The CAP team will also serve as a resource to the

community during implementation by developing and promoting accessible CAP outreach materials, resources, and engagement opportunities. The CAP team plans to:

- Sponsor Earth Day events and partner with local environmental organizations.
- Support and partner with the Parks Department for Parks Appreciation Day and clean-up day.
- Fund and partner with the Downtown Waterfront Alliance's Giggling up the Harbor clean-up event.

Community engagement is the primary focus or a critical element of the following actions:

Focus Area	Action ID	Action Short Name
Crosscutting & Municipal	CC1.1	Climate and sustainability in schools
Crosscutting & Municipal	CC1.2	Climate education and awareness
Buildings & Energy	BE1.2	Contractor incentive & training program
Transportation	TR1.2	Community EV education
Transportation	TR3.1	Aviation industry advocacy and education
Consumption & Disposal	CD2.1	Garden access and creation
Natural Systems	NS1.1	Urban Forestry Plan and tree planting incentive program
Natural Systems	NS2.1	Native vegetation protection
Natural Systems	NS2.2	Water-efficient landscape standards
Natural Systems	NS2.5	Rainwater reuse education
Community Resilience	CR1.2	Wildfire smoke and public health awareness
Community Resilience	CR2.1	Climate emergency communication and resources

EQUITY

CAP implementation will consider and center equity by reflecting on the following considerations for actions during implementation:

- **Disproportionate impacts**
 - Does this action generate externalities, or unintended impacts, which affect communities of color and/or low-income communities?
 - If yes, how can we mitigate these impacts and ensure that the implementation is equitable?
- **Access to participation and technical knowledge**
 - Does this action incorporate a range of access needs?
 - How can we conduct more effective outreach for affected communities of color and low-income communities?
- **Tracking progress**
 - How will the City measure success in its equity and inclusion efforts for this action?
 - How can we include and uplift communities of color and low-income communities through this action?

APPENDIX A: IMPLEMENTATION MATRIX

An Implementation Matrix is used to identify key implementation impacts and details for each action. The Implementation Matrix includes the 7 key implementation criteria.

IMPLEMENTATION CRITERIA

The table below presents an example of the information conveyed in each column of the implementation matrix:

Impact	Cost	Timeline	Funding Sources	Lead Implementor	Partnership Opportunities	Implementation Considerations
Relative measure of the action's potential to reduce emissions and increase resiliency.	Estimate of how much the action will be for the City to implement.	The timeframe for starting to implement an action.	Known or new funding sources, including City budgets, local, federal relief programs, state and federal grants, and incentive programs.	City department responsible for overseeing implementation. Existing staff capacity and departmental budgets may need to be re-evaluated regularly to ensure sufficient resources for implementation.	Known regional partners to support implementation.	General factors the City will consider when implementing the action, such as sequencing and/or key next steps.

NOTES ON TIMELINE

The Implementation Matrix indicates how the City will strategically phase and sequence implementation to prioritize: early wins or actions that will take longer to implement or have dependent actions that need to be sequenced.

ICON LEGEND						
Impact		= Low potential to reduce emissions and enhance resiliency	 	= Moderate potential to reduce emissions and enhance resiliency	  	= High potential to reduce emissions and enhance resiliency
Cost		= Low cost, from no cost to less than \$100K	 	= Moderate cost, from \$100K to \$1 million	  	= High cost, from \$1 to \$10 million
Timeline		= Short-term 1 – 5 years - Easy, early wins and foundation steps - Actions that may require substantial time or resources, so it is important to start as soon as possible -Actions that align with or could support other City plans, projects, or updates and should be implemented concurrently	 	= Medium-term 5 - 10 years - Actions that might require additional resources to implement or cannot occur until foundational actions are implemented	  	= Long-term 10+ years - Actions that are not as time sensitive as shorter-term actions - Actions that require substantial infrastructure and resources or build upon foundational short and midterm actions

CROSSCUTTING & MUNICIPAL

Action ID	Action Short Name	Impact	Cost	Timeline	Lead Implementor	Partnership Opportunities	Funding Sources	Implementation Considerations
CC1.1	Climate and sustainability in schools	↓	\$	🕒🕒	Planning, Administration	Schools		Need for a communications plan and appropriate staffing.
CC1.2	Climate education and awareness	↓	\$ \$	🕒	Planning, Administration	Schools, Pierce County Climate Planning		
CC1.3	Climate partnerships and collaboration	↓	\$	🕒	Planning, Administration	Schools		Flexibility for staff to participate in regional climate groups/meetings.
CC2.1	City carpool and commute reduction programs	↓ ↓	\$	Ongoing	Administration	Pierce Transit	WSDOT: Transportation Demand Management Grants	Existing commute reduction program, flexible scheduling, and remote work is available within the wellness program.
CC2.2	Municipal vehicle electrification	↓ ↓ ↓	\$ \$	In progress	Public works		Charging and fueling Infrastructure Discretionary Grant Program ; WSDOT: Zero-emission vehicle grants	Add public vehicle charging stations to the sports complex project and the public works operations center. Vehicle charging stations currently available in Millville and Maritime Pier parking lots.
CC2.3	Municipal solar installation	↓ ↓ ↓	\$ \$ \$	🕒🕒🕒	Public Works, Operations		DOE GRIP Grants	Aligns with State mandates. Need to evaluate which City buildings

Action ID	Action Short Name	Impact	Cost	Timeline	Lead Implementor	Partnership Opportunities	Funding Sources	Implementation Considerations
								and locations are feasible for solar electricity and hot water.
CC3.1	Climate considerations in government	↓ ↓ ↓	\$ \$	🕒	Planning, Administration			Comprehensive Plan goals and policies around displacement, equitable development, siting facilities. Overlap with the Emergency Management and Hazard Mitigation Plan update and the Parks and Recreation Open Space (PROS) plan.
CC3.2	Green, affordable housing	↓ ↓ ↓	\$ \$	In progress	Community Development	WA State Resources		Housing needs assessment (HNA) will incorporate strategies into the Comprehensive Plan.
CC4.1	Collaboration with local tribes	↓ ↓	\$	In Progress	Community Development, Public Works	Puyallup Tribe, Squaxin Island Tribe		Regular communications and collaboration with five local tribes. Specifically, Puyallup Tribe and Squaxin Island Tribe are close partners.

BUILDINGS & ENERGY

Action ID	Action Short Name	Impact	Cost	Timeline	Lead Implementor	Partnership Opportunities	Funding Sources	Implementation Considerations
BE1.1	Heat pump program expansion	↓ ↓ ↓	\$ \$	🕒	Building			Adopt energy code updates in October 2023.
BE1.2	Contractor incentive & training program	↓ ↓	\$ \$	🕒 🕒	Building	L&I		Adopt energy code updates in October 2023.
BE1.3	WA State Building Code compliance	↓ ↓ ↓	\$	🕒	Building		Ecology: Wood stove education & enforcement grants	Adopt energy code updates in October 2023.
BE1.4	Green Power promotion	↓ ↓	\$	🕒	Public Works			Provide information on City website to raise awareness of applicable PSE and Peninsula Light programs.
BE1.5	Solar energy grid resiliency and community solar projects	↓ ↓ ↓	\$ \$	🕒 🕒 🕒	City Council, Public Works, Community Development	PSE and Solar contractors	DOE Grid Resilience and Innovation Partnerships (GRIP) Program; WA Department of Commerce	Opportunity to provide permitting process incentives.

Action ID	Action Short Name	Impact	Cost	Timeline	Lead Implementor	Partnership Opportunities	Funding Sources	Implementation Considerations
							Solar Plus Storage	
BE2.1	Energy efficiency retrofits	↓ ↓	\$ \$	🕒 🕒	Administration	PSE, Peninsula Light	Energy Efficiency and Conservation Block Grant Program; Building Codes Implementation for Efficiency and Resilience; WA Department of Commerce Solar Plus Storage	Provide information on City website about applicable PSE and Peninsula Light programs for consumers.
BE2.2	Green Infrastructure Policy	↓ ↓ ↓	\$ \$	🕒 🕒	Community Development			Track and align with future energy code and design manual updates.

TRANSPORTATION

Action ID	Action Short Name	Impact	Cost	Timeline	Lead Implementor	Partnership Opportunities	Funding Sources	Implementation Considerations
TR1.1	Public EV Infrastructure Plan	↓ ↓ ↓	\$ \$	🕒 🕒	Public Works, Community Development	Peninsula Regional Transportation Planning Organization (RTPO)	Charging and fueling Infrastructure Discretionary Grant Program; Grants for Energy Efficiency and Renewable Energy Improvements at Public School Facilities	Consider Level II vs Level III charging stations.
TR1.2	Community EV education and incentives	↓ ↓	\$ \$	🕒 🕒	Administration		Federal Incentives; State Incentives	Provide information on City website about applicable programs for consumers.
TR1.3	Electric trolley	↓	\$ \$	🕒 🕒	Administration	Pierce Transit		Consider electric trolley cost.
TR1.4	Ban on gas powered landscaping equipment	↓ ↓	\$ \$	🕒 🕒	Administration, Public Works			Consider cost to replace municipal landscaping equipment and address challenges of public enforcement.

Action ID	Action Short Name	Impact	Cost	Timeline	Lead Implementor	Partnership Opportunities	Funding Sources	Implementation Considerations
TR2.1	Regional public transportation	↓ ↓ ↓	\$ \$	🕒	Administration, Public Works	Pierce Transit	Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation	Propose a trial period for bike/scooter share program to ensure safety and use.
TR2.2	Bike infrastructure	↓ ↓	\$ \$	🕒 🕒	Planning, Public Works			Codify bike rack requirements. Active Transportation Plan overlap.
TR2.3	Curb management	↓	\$	🕒	Planning, Public Works	Chamber of Commerce, Downtown Waterfront Alliance		Public Works Standards update.
TR2.4	Promote dense, mixed use, and transit-oriented development	↓ ↓ ↓	\$ \$	🕒	Planning, Public Works	Pierce Transit	WSDOT Transportation Demand Management Grants	Compliance with WA State goals and policies around mixed use development, housing inventory, and transit access.
TR3.1	Aviation industry advocacy and education	↓ ↓ ↓	\$ \$	🕒 🕒 🕒	Administration			

CONSUMPTION & DISPOSAL

Action ID	Action Short Name	Impact	Cost	Timeline	Lead Implementor	Partnership Opportunities	Funding Sources	Implementation Considerations
CD1.1	Recycling requirements in new buildings	↓	\$	🕒🕒	Community Development	Developers, HOAs	Ecology: Waste Reduction and Recycling Education Grants	Need to conduct outreach to developers and HOAs.
CD1.2	Phase-in mandatory composting/recycling	↓ ↓ ↓	\$ \$	🕒🕒	Public Works, Administration	Waste Management (WM)	Ecology: Waste Reduction and Recycling Education Grants	Need to conduct outreach and education campaigns. Consider equity, incentives, and support passing costs to customers.
CD1.3	Solid waste emissions reduction	↓	\$	🕒🕒🕒	Public Works, Administration	WM, Pierce County, Tribes	Solid Waste Infrastructure for Recycling Grant Program	Administration to advocate for state-level action to implement. Support emission reduction policies across jurisdictions.
CD2.1	Garden access and creation	↓	\$ \$	🕒🕒	Planning, Parks	Pierce Conservation District	WSDA Grants	Grants available for schools and community organizations. Opportunity to partner in grant process and support with City funds.
CD2.2	Food waste reduction plan	↓ ↓	\$	🕒	Administration	WM, Fish Food Bank		Need outreach and planning to restaurants and businesses.

NATURAL SYSTEMS

Action ID	Action Short Name	Impact	Cost	Timeline	Lead Implementor	Partnership Opportunities	Funding Sources	Implementation Considerations
NS1.1	Urban Forestry Management Plan (UFMP) and tree planting program	↓ ↓ ↓	\$ \$	Ongoing	Planning, Public Works		Urban and Community Forestry Grant	Comprehensive Plan and NPDES Stormwater Permit overlap.
NS2.1	Native vegetation protection	↓ ↓	\$ \$	Ongoing	Planning, Public Works	West Sound Stormwater Outreach Group (WSSOG), Pierce Conservation District, HOAs	Stormwater Capacity Grant	Synergies with Natural Yard Campaign.
NS2.2	Water-efficient landscape standards	↓	\$	Ongoing	Planning, Public Works		Stormwater Capacity Grant	Synergies with Water Use Efficiency and Natural Yard Campaign.
NS2.3	Stormwater runoff pollution reduction	↓ ↓	\$ \$	Ongoing	Public Works	Pollution Prevention Assistance		Staff for source control inspections per NPDES Permit requirements.
NS2.4	New stormwater	↓ ↓ ↓	\$ \$ \$	Ongoing	Public Works		National Culvert Removal	Synergy with Stormwater Manual.

	development plan						Replacement and Restoration Grant Program	
NS2.5	Rainwater reuse education	↓	\$ \$	🕒	Public Works	Pierce Conservation District, Tacoma-Pierce County Health Department	Stormwater Capacity Grant ; Green Stormwater Mini-Grants	Staff for reintroduction of rain barrel workshops.
NS2.6	Reclaimed water program	↓	\$	🕒	Public Works			Build off existing City work.
NS3.1	Carbon-sequestering natural resource protection	↓ ↓	\$ \$	🕒	Planning, Parks		Pierce County Conservation Futures	PROS Plan overlap.

COMMUNITY RESILIENCE

Action ID	Action Short Name	Impact	Cost	Timeline	Lead Implementor	Partnership Opportunities	Funding Sources	Implementation Considerations
CR1.1	Energy-resilient critical facilities	↓ ↓ ↓	\$ \$	🕒🕒	Public Works	Gig Harbor Fire		Research low-carbon alternatives and accessibility for critical facilities.
CR1.2	Wildfire smoke and public health awareness	↓ ↓	\$	🕒	Administration	Puget Sound Clean Air Agency, Schools, Greater Gig Harbor Foundation, senior groups, Rotary		Opportunity to combine outreach and community education.
CR1.3	Encourage adaptation upgrades	↓ ↓ ↓	\$ \$	🕒	Administration, Community Development	Peninsula Light, PSE, WA State, FEMA	Weatherization Programs; Matchmaker Program - Washington State Weatherization	Provide information on City website about applicable programs for consumers.
CR2.1	Climate emergency communication and resources	↓ ↓ ↓	\$ \$	In Progress	Planning, Administration	Churches, Fire, Police	Community Facilities Direct Loan & Grant Program in	Emergency Management Plan overlap.

Action ID	Action Short Name	Impact	Cost	Timeline	Lead Implementor	Partnership Opportunities	Funding Sources	Implementation Considerations
							Washington	
CR3.1	Sea-level rise and coastal resiliency	↓ ↓ ↓	\$ \$ \$	🕒🕒🕒	Community Development, Public Works	Pierce County, US Army Corps of Engineers	Hazard Mitigation Assistance Grants ; Flood Mitigation Assistance Grant Program	New zoning restrictions will likely come from FEMA.
CR3.2	Coastal wetland and park expansion	↓ ↓	\$ \$ \$	🕒🕒🕒	Planning, Parks	Fish and Wildlife, Ecology	Wetlands conservation grants	Increase buffer requirements and consider City infrastructure built out around existing wetlands.

APPENDIX B: 2019 GREENHOUSE GAS EMISSIONS INVENTORY REPORT

INTRODUCTION

Cascadia Consulting Group (Cascadia) prepared this report to present the results of the City of Gig Harbor's 2019 greenhouse gas (GHG) inventory and recommend targets for the City to consider adopting in conjunction with the City's Climate Action Plan (CAP).

In 2022, Gig Harbor's City Council committed to climate action by integrating climate into their Comprehensive Plan Update, developing a CAP, and organizing the Climate Change Comprehensive Plan Amendment Committee (CCCPAC).¹³ To support the City's commitment to sustainability, the City conducted a baseline communitywide GHG emissions inventory. Using the baseline GHG inventory, Gig Harbor will be able to quantify communitywide emissions to identify opportunities for impactful emissions reduction strategies and track progress towards reduction goals.

METHODOLOGY

This baseline GHG inventory quantifies communitywide emissions within Gig Harbor— including emissions from residents, businesses, and visitors of Gig Harbor. These emissions come from on- and off-road transportation used to move people, products, and solid waste; energy consumption to power, heat, and cool homes and buildings; land-use changes; and fugitive emissions from refrigerants, solid waste management, and wastewater operations. Emissions were calculated using locally specific data, when available. When local data was not available, emissions were scaled down by population, employment, or income using available national or regional data.

Emissions were quantified for the 2019 calendar year. This year was chosen because it is the most recent pre-COVID-19 year, and therefore the most representative of “typical” community emissions. Future inventories may be conducted to track community progress on emissions reductions, during which time Gig Harbor may choose to update the baseline year to reflect the post-COVID “new normal.”

The 2019 GHG inventory was prepared in accordance with ICLEI-Local Governments for Sustainability's U.S. Community Protocol (USCP), an industry standard for local community GHG inventories.¹⁴ The USCP accounts for GHG emissions sources that occur within the geographic city boundary, such as on-road transportation and on-site fuel oil combustion for heating, as well as for sources that occur outside the city boundary but from community activities, such as electricity use and aviation.

¹³ [City of Gig Harbor, Climate Action Plan, 2022](#)

¹⁴ [ICLEI, US Community Protocol](#)

ANALYSIS HIGHLIGHTS

In 2019, Gig Harbor's community emitted 82,524 MTCO₂e from transportation, buildings and energy, land use, refrigerants, solid waste, and wastewater (See *Figure 15*). This equates to roughly 8 MTCO₂e per capita, averaging lower than Pierce County's 12 MTCO₂e per capita rate, but on par with similarly sized jurisdictions in Washington (See *Figure 16*).^{15,16}

Figure 15. Gig Harbor's GHG emissions profile (2019)

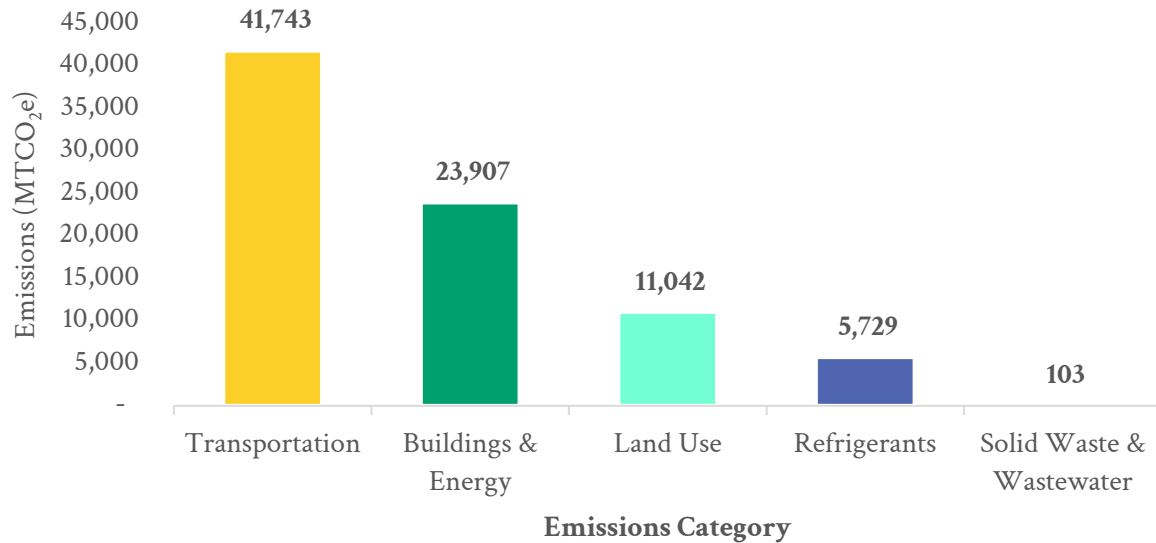
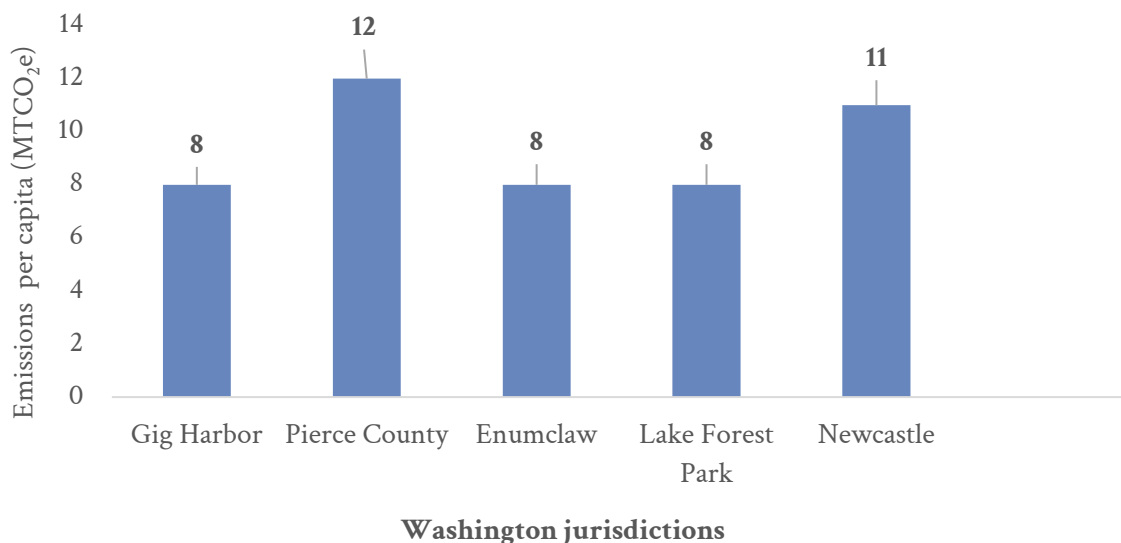


Figure 16. GHG emissions per capita (2019)



¹⁵ [Pierce County, Communitywide Geographic Greenhouse Gas Emissions, 2022](#)

¹⁶ [King County, King County Greenhouse Gas Emissions, 2021](#)

Analysis of Gig Harbor's 2019 GHG emissions revealed the following key insights:

- **Transportation** was the largest source of emissions within the community, responsible for 51% (41,743 MTCO₂e) of Gig Harbor's emissions. Within transportation, on-road sources (from passenger and freight vehicles) were the highest contributors. It is common for transportation emissions to be the top contributor, specifically when a jurisdiction's electricity provider relies on renewable sources.
- **Building energy** was the second largest source of communitywide emissions, making up 29% (23,907 MTCO₂e) of Gig Harbor's emissions profile. Within buildings and energy, natural gas consumption was the largest contributor of GHG emissions.
- **Land use** was the third largest source of communitywide emissions, contributing 13% (11,042 MTCO₂e) to Gig Harbor's emissions. This is on par with Pierce County land use emissions, but Pierce County's land use emissions trend higher than neighboring counties, like King County, due to higher rates of forest land being converted for settlement.¹⁷
- The remaining emissions stem from **refrigerant leakage** (7%, 5,729 MTCO₂e), and **solid waste and wastewater management** (0.1%, 103 MTCO₂e).

¹⁷ [King County, King County Greenhouse Gas Emissions, 2021](#)

GHG INVENTORY SUMMARY, BY SECTOR

TRANSPORTATION

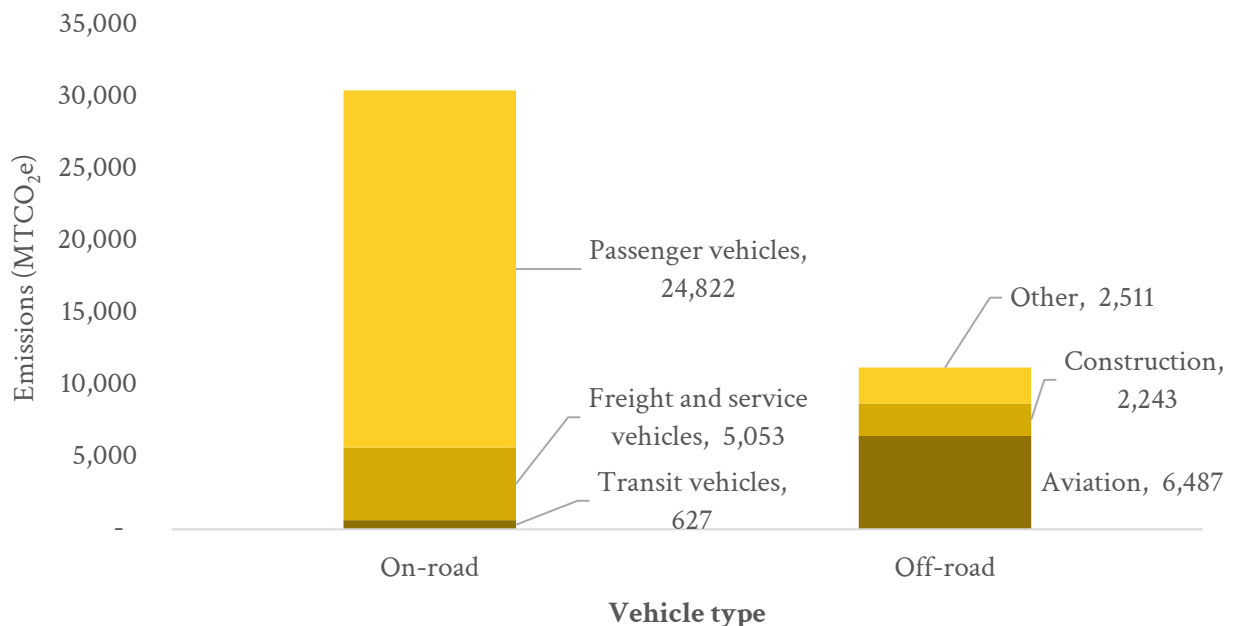
Transportation emissions stem from fuel combustion and usage to power on-road vehicles and off-road vehicles and equipment, including aviation. On- and off-road emissions were calculated using Pierce County data scaled down to represent Gig Harbor's population. Off-road emissions were calculated using the EPA's Motor Vehicle Emission Simulator (MOVES).¹⁸

- **Transportation** sources make up 51% (41,743 MTCO₂e) of Gig Harbor's community emissions profile—the largest source.

On-road vehicles contributed the most to the transportation sector's emissions. They were responsible for 73% (30,503 MTCO₂e) of transportation emissions (See

- *Figure 17*).
- **Passenger vehicles** produce the most on-road emissions, making up 81% (24,822 MTCO₂e) of on-road emissions. Passenger vehicles alone account for 30% of overall community emissions.
- **Aviation** and **construction equipment** contribute the most to off-road sources, emitting 6,487 MTCO₂e and 2,243 MTCO₂e, respectively. Aviation emissions were estimated by allocating SeaTac Airport's emissions based on regional local income.

Figure 17. Transportation GHG emissions by vehicle type (2019)



¹⁸ [US EPA, Motor Vehicle Emission Simulator \(MOVES\)](#)

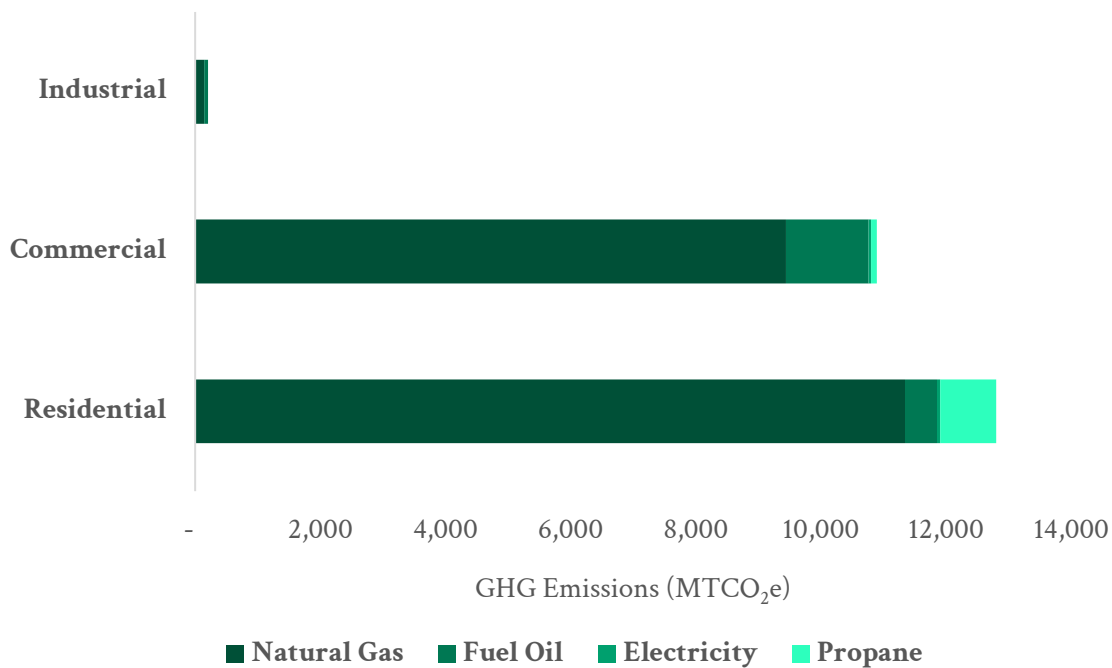
BUILDINGS & ENERGY

Building energy emissions come from the production and consumption of electricity, natural gas, propane, and fuel oil to power, heat, and cool residential, commercial, and industrial buildings. Natural gas and electricity emissions were calculated using utility-specific data. Fuel oil and propane emissions were estimated based on the U.S. Energy Information Administration (EIA) annual fuel sales dataset and home heating data from the U.S. Census.

Building energy is the second highest contributing source of GHG emissions, making up 29% (23,907 MTCO₂e) of Gig Harbor's community emissions (See

- *Figure 18*).
- The **residential** building sector produced the largest portion (54%) of building energy emissions (12,804 MTCO₂e). **Commercial** sources largely contributed the remaining 46% (11,103 MTCO₂e).

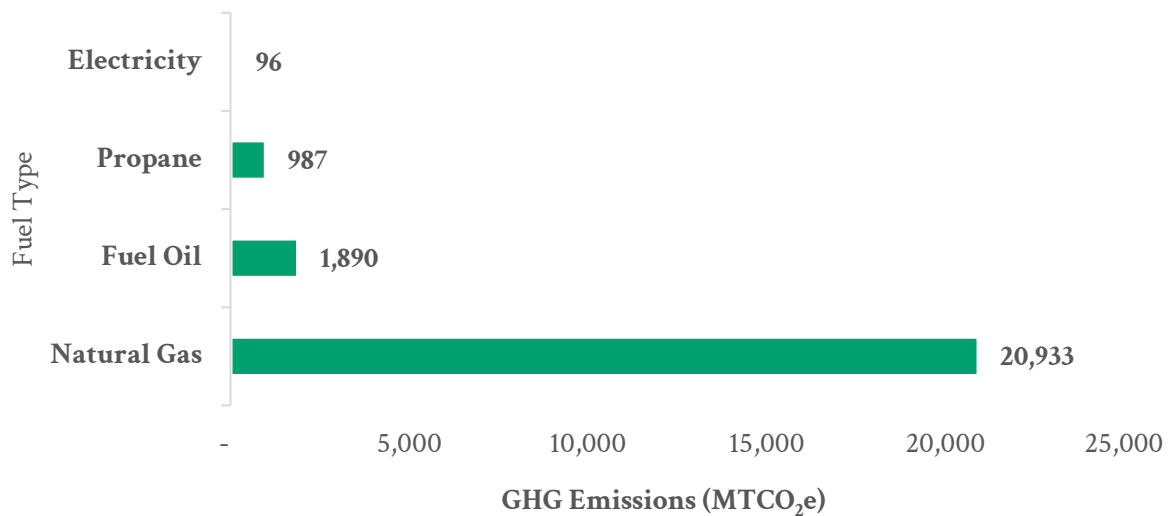
Figure 18. Building energy GHG emissions, by sector and fuel type (2019)



Natural gas consumption is responsible for most (88%) of Gig Harbor's building energy emissions (20,933 MTCO₂e) (See

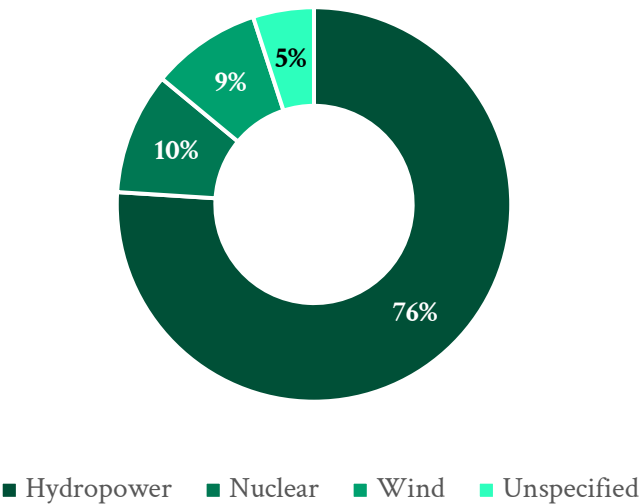
- **Figure 19).** Natural gas consumption emissions account for 25% of Gig Harbor's overall emissions.
- **Electricity** consumption contributes the lowest amount to Gig Harbor's building energy emissions because Peninsula Light Company (PLC), which supplies the jurisdiction with power, sources 95% of electricity production from carbon-free fuel. In 2019, PLC purchased power from the following sources: 76% hydropower, 10% nuclear, and 9% wind (See Figure 20).¹⁹

Figure 19. Building energy GHG emissions, by fuel type (2019)



¹⁹ [PLC, PenLight's Electricity is 95% Carbon-Free, 2021](#)

Figure 20. PLC fuel mix (2019)

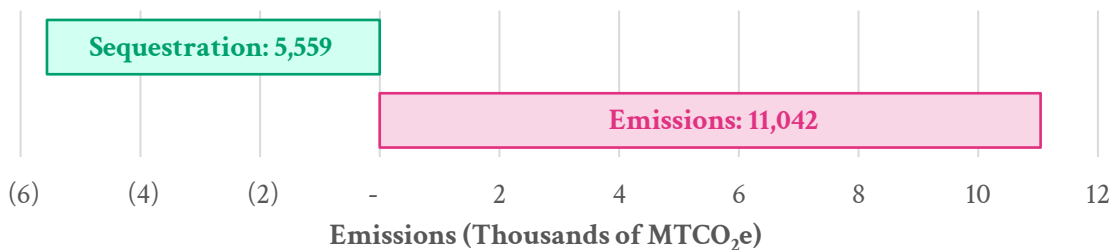


LAND USE

Land use emissions account for the carbon released when tree cover or vegetation is lost or converted to an alternative land type. Pests, fire, and other disturbances can also cause tree and vegetation loss. Alternatively, land use carbon removals, which are reported separately from the emissions, occur when additional carbon is stored in the city’s tree canopy and vegetation through annual growth and improved management. Land use emissions were calculated using the ICLEI’s Land Emissions and Removals Navigator (LEARN) tool.²⁰ The tool provides multi-year estimates (in this case, 2016-2019) that are then averaged for a per-year estimate.

- **Land use change** emissions accounted for 13% (11,042 MTCO₂e) of Gig Harbor’s emissions profile in 2019 (see Figure 7). The largest factor contributing to land use emissions was **forest converted to settlement**, contributing 67% (7,383 MTCO₂e) in 2019.
- **Carbon sequestration** from undisturbed forest, reforested areas, and maintained or gained tree canopy within Gig Harbor removed or sequestered 5,559 MTCO₂e in 2019 (See
- *Figure 21*).

Figure 21. Land use GHG emissions and removals (2019)



²⁰ [ICLEI, LEARN](#)

REFRIGERANTS

Refrigerant emissions are a fugitive source of emissions caused by the leakage of refrigerants, primarily hydrofluorocarbons (HFCs). Refrigerants are used for cooling equipment such as air conditioning and refrigeration equipment and have a high global warming potential (amount of global warming resulting from one unit of that gas). Cascadia estimated fugitive emissions occurring from refrigerants by scaling national refrigerant estimates to Gig Harbor's population.

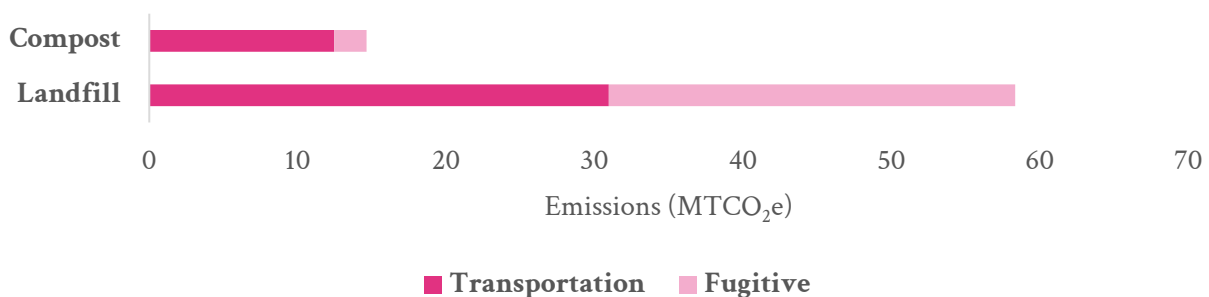
- Fugitive emissions occurring from **refrigerants** contributed 7% (5,729 MTCO₂e) to Gig Harbor's emissions profile in 2019.

SOLID WASTE & WASTEWATER

Solid waste and wastewater emissions are a fugitive source caused by the leakage of methane (CH₄) from landfill and compost operations, nitrification, denitrification, and effluent discharge from wastewater treatment. Methane leakage at landfill and compost sites occurs when waste decomposes in an anaerobic environment (without oxygen). Emissions also occur when solid waste is transported to the landfill and compost site. Cascadia calculated solid waste emissions by inputting locally specific tonnage data into the EPA's Waste Reduction Model (WARM).²¹ Wastewater emissions were calculated using locally specific data provided by Gig Harbor.

- Together, **solid waste and wastewater** emissions contributed 0.10% (103 MTCO₂e) to Gig Harbor's 2019 emissions profile.
- Solid waste** emissions make up 71% (73 MTCO₂e) of these emissions, with most emissions coming from landfill operations. **Landfill** emissions account for 80% (58 MTCO₂e) of solid waste emissions (See Figure 22).
- Transportation** to landfill and compost sites are responsible for 60% (43 MTCO₂e) of solid waste emissions. Fugitive sources are responsible for the remaining 40% (30 MTCO₂e) (See Figure 22).
- Wastewater** emissions make up the remaining 29% (30 MTCO₂e) of these emissions, with nitrification and denitrification (biological process that uses bacteria to treat wastewater) contributing most to wastewater emissions. Nitrification and denitrification account for 93% (28 MTCO₂e) of wastewater treatment emissions, and the remaining come from effluent discharge.

Figure 22. Solid waste GHG emissions (2019)



²¹ [US EPA, Waste Reduction Model \(WARM\)](#)

GHG EMISSIONS REDUCTION TARGETS

BACKGROUND & CONSIDERATIONS

The result of analysis of Gig Harbor and Pierce County's current and forecasted emissions is a suite of emissions reduction targets that the City can use to identify sector-specific opportunities to reduce emissions. The top sectors for emissions reduction impact are transportation, building energy, and land use. Based on Gig Harbor's emissions profile, Cascadia recommends that Gig Harbor adopt goals and strategies to electrify passenger and service vehicles, reduce vehicle miles traveled, electrify buildings, increase building efficiency, and reduce loss of tree cover.

Emissions reduction targets for the Gig Harbor Climate Action Plan (CAP) are based on the analysis of Pierce County's emissions and accompanying wedge model, developed for the 2022 Puget Sound Regional Emissions Analysis (PSREA). For more details on this inventory effort, please reference the complete [Pierce County PSREA Report](#).

The wedge model analyzes and forecasts emissions from Pierce County based on the expected emissions reduction from external factors (primarily state and federal climate policies), as well as the County reaching specific scenarios that will impact emissions (e.g., reducing overall building energy use or reducing transportation emissions by reducing the number of vehicle miles traveled in passenger vehicles). **These scenarios are dynamic and can be adjusted in the Excel model that accompanies this report.**

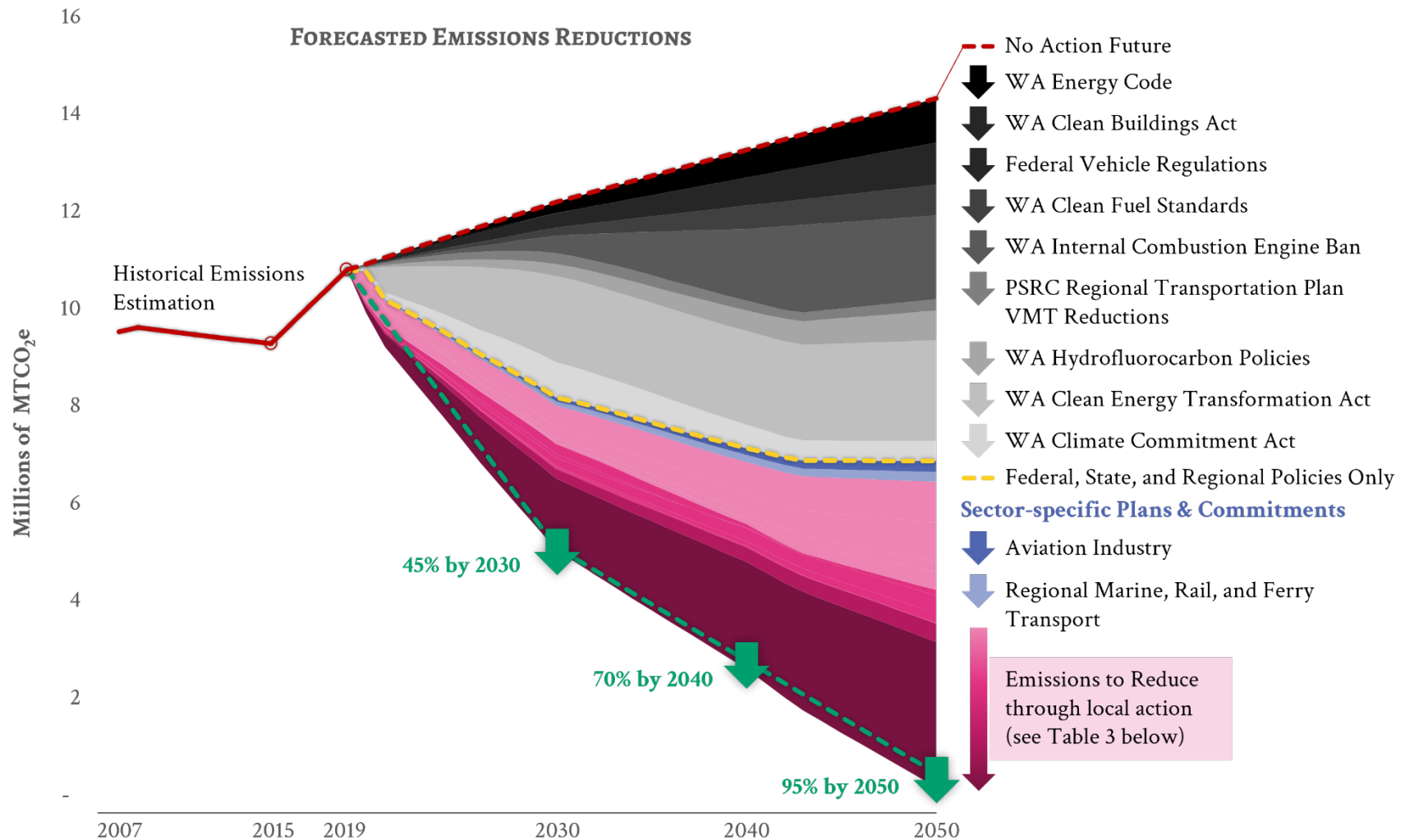
Figure 23 and Table 3 below outline one potential pathway (i.e., combination of scenarios in the model) for reducing Pierce County emissions to meet [the County's goal](#) of achieving an emissions reduction of 45% by 2030, and Washington state's target of reducing emissions by 70% by 2040, and 95% by 2050 from a 2015 baseline.²² Table 3 below provides potential sector-specific emission reduction targets that would align Gig Harbor with these overarching Washington State and Pierce County targets.

For Gig Harbor, **we used this tool as one input to inform the emissions reduction targets for the Climate Action Plan.** We also used the results from the community's own GHG inventory to adjust targets as needed based on the city's own unique emissions profile.

²² Note that Pierce County has not yet committed to reduction targets for 2040 or 2050; targets presented here are hypothetical.

EMISSIONS REDUCTION PATHWAY

Figure 25: Wedge graphic detailing a potential emissions reduction pathway for Pierce County.



PIERCE COUNTY'S MODELED REDUCTION TARGETS

Table 3. Wedge Model Target Scenario for Pierce Count

Wedge color	Target/Scenario	2030	2040	2050
	Electrify new buildings (% fossil fuel use converted to elect.)	100%	100%	100%
	Reduce energy use in existing buildings (% reduction in energy use)	25%	35%	45%
	Electrify existing buildings (% fossil fuel use converted to elect.)	20%	40%	100%
	Increase local solar (total new MW) ²³	100	200	250
	Reduce passenger vehicle miles traveled (% reduction in VMT)	10%	20%	25%
	Electrify passenger vehicles (% new vehicles sold that are EV)	65%	95%	100%
	Electrify freight/service vehicles (% new vehicles sold that are EV)	25%	75%	100%
	Decarbonize offroad equipment (% reduction in emissions)	50%	75%	95%
	Decarbonize aviation fuels (% reduction in fuel carbon intensity) ²⁴	20%	55%	95%
	Reduce air travel & increase efficiency (% reduction in aviation fuel use) ⁹	15%	20%	25%
	Divert C&D materials (% of C&D waste diverted) ²⁵	85%	85%	85%
	Divert other recyclable and compostable materials (% reduction in waste to landfill) ²⁶	50%	75%	95%
	Maintain tree cover, reducing loss (% reduction in tree loss)	50%	75%	102% ²⁷
	Protect land carbon sinks (% of current sinks protected)	100%	100%	100%

²³ Note that the amount of possible solar generation for Gig Harbor will likely be less than the amount detailed here (which covers the whole County). We can more accurately determine Gig Harbor's MW once we have completed the GHG inventory.

²⁴ Note that while Gig Harbor does not have direct control over aviation it can support legislation for sustainable aviation.

²⁵ Note that Gig Harbor is not committing to a C&D target.

²⁶ To achieve this target, the City will need to sign into a franchise agreement with a waste hauler who can provide composting services.

²⁷ To achieve this current target, the County will need to increase tree canopy coverage by 2% by 2050.



Gig Harbor

2023 Climate Action Plan

Accomplishments

- Formed CCCPAC
- Recommended Comp Plan amendments from CCCPAC
- Climate change goals & policies added to Comp Plan by Ordinance 1501 on November 28, 2022
- Secured climate planning grant
- Hired climate planning consultant



Climate Action Plan Scope

The CAP Is:

City Policy
Document

Overlapping with
Other City Plans

Implemented on
10-20 year timeline

Going to Evolve

The CAP Is Not:

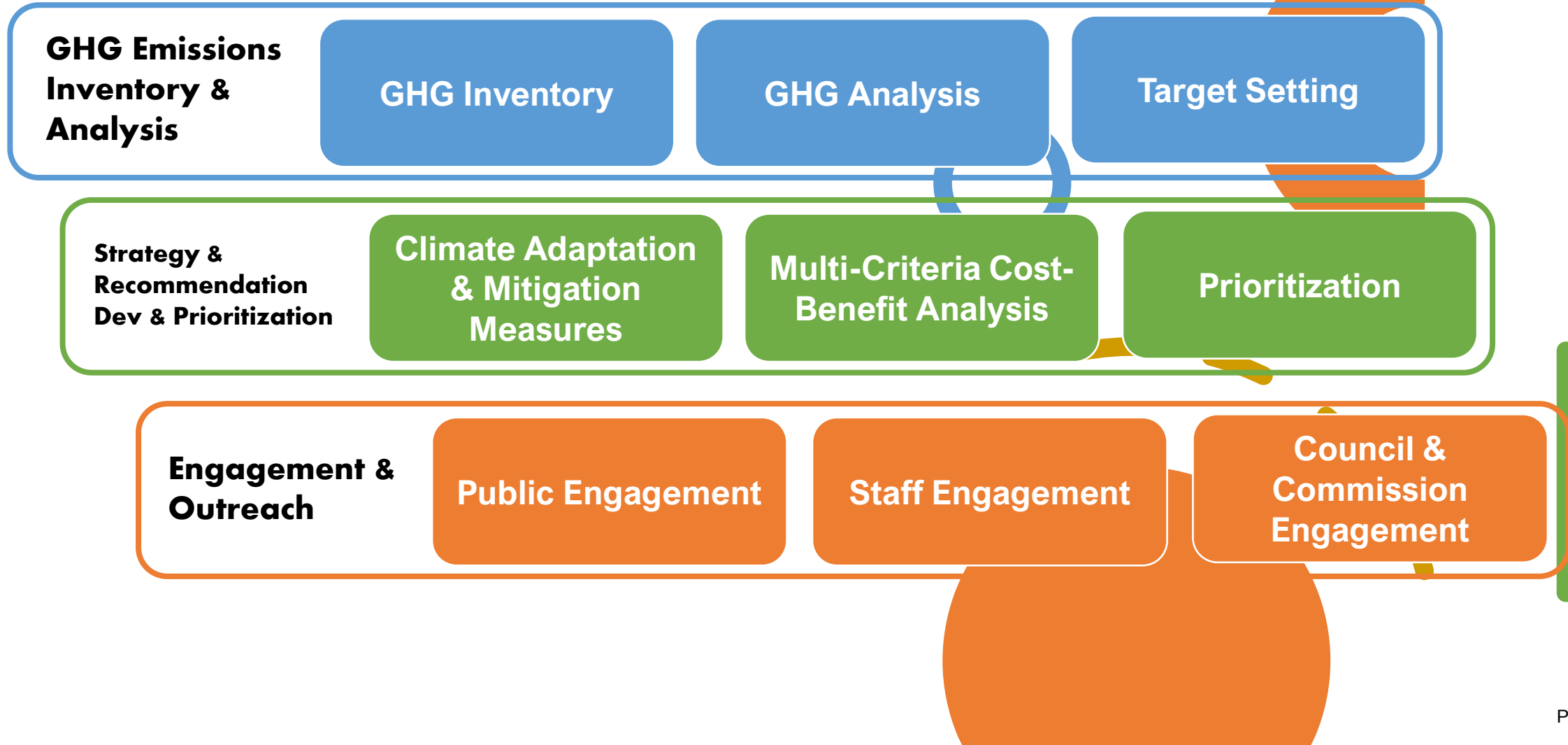
Public Education
Document

Tree Ordinance

A Mandate for
Individual Actions

Perfect

Climate Action Plan



Community Engagement

External Engagement

- Community-wide survey (Cascadia)
- Community meeting (Cascadia)
- City newsletter (City)
- Social media (City)
- Project webpage (City)

Internal Engagement

- Staff workshop (Cascadia)
- Council & Commission meetings (City & Cascadia)

Goals & Strategies

Crosscutting & Municipal Goal

Reduce community & municipal GHG emission through internal city policies & initiatives & by encouraging community members and city staff to participate in local climate action.

Metrics & Targets	2030	2050
Reduce overall city emissions (% reduction)	45% below 2019 baseline	95% below 2019 baseline

Strategies

Engage the community in climate action

Reduce GHG emissions from municipal operations

Integrate climate change into city planning & decision-making

Increase participation in regional & local climate outreach & advocacy

Goals & Strategies

Buildings & Energy Goal

Reduce building GHG emissions through energy efficiency, building electrification & renewable energy.

Metrics & Targets

	2030	2050
Increase local solar (total new MW)	100 MW	250 MW
Electrify new buildings (% conversion to electric)	100%	100%
Electrify existing buildings (% conversion to electric)	20%	100%
Reduce energy use in existing buildings (% reduction in energy use)	25%	45%

Strategies

Transition to renewable building energy

Reduce energy use in new & existing buildings

Goals & Strategies

Buildings & Energy Goal

Reduce greenhouse gas emissions from transportation by expanding the use of electric vehicles, increasing multimodal transportation options & improving cycling & pedestrian infrastructure.

Metrics & Targets

	2030	2050
Electrify passenger vehicles (% new EV vehicles sold)	65%	100%
Electrify freight/service vehicles (% new EV vehicles sold)	25%	100%
Decarbonize/electrify offroad equipment (% emission reduction)	20%	95%
Advocate to decarbonize aviation fuels (% reduction in fuel carbon intensity)	20%	50%

Strategies

Transition to non-fossil fuel vehicles & equipment

Reduce vehicle travel

Reduce aviation emissions

Goals & Strategies

Consumption & Disposal Goal

Reduce greenhouse gas emissions from transportation by expanding the use of electric vehicles, increasing multimodal transportation options & improving cycling & pedestrian infrastructure.

Metric & Targets

	2030	2050
Divert recyclable & compostable material (% reduction in waste to landfill)	50%	95%

Strategies

Reduce waste generation & divert waste from landfills

Produce & consume food sustainably

Goals & Strategies

Natural Systems Goal

Foster climate resilient natural landscape by conserving water resources & preserving & expanding vital habits, ecosystems & natural resources.

Metrics & Targets

	2030	2050
Maintain tree cover & reduce canopy loss (% reduction in tree loss)	50%	102%
Protect critical areas/land carbon sinks (% areas protected)	100%	100%

Strategies

Increase urban tree canopy & expand community green spaces

Promote water conservation & enhance water system resiliency

Protect & restore valuable natural resources that sequester carbon

Goals & Strategies

Community Resilience Goal

Ensure that all Gig Harbor residents are prepared for current & future climate impacts

Metrics & Targets

	2030	2050
All of Gig Harbor's population served by climate emergency response services	100%	100%
Increase participation in community programs focused on climate resilience	Increased participation	Increased participation

Strategies

Increase community resilience to climate impacts

Prepare infrastructure & services for climate change

Prepare for sea level rise & coastal erosion

Implementation & Quick Wins

Focus Area	Action Short Name
Crosscutting & Municipal	Climate considerations in government
Transportation	Regional public infrastructure
Transportation	Bike infrastructure
Transportation	Curb management
Transportation	Promote dense, mixed use & transit-oriented development
Natural Systems	UFMP & tree planting incentive program
Natural Systems	Native vegetation protection
Natural Systems	Carbon-sequestering natural resource protection

Next Steps

Comprehensive Plan Climate Element

- Must include greenhouse gas mitigation & resilience policies
- Must be adopted by 2029
- City applying for funding to develop element by 2025

Plan Implementation

- Living document
- Internal work group
- Semi-annual Planning Commission meetings for climate action focus

Thank you!

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Rrobles@gigharborwa.gov
(253) 525-0319



**City of Gig Harbor
City Council Meeting Agenda Bill**

Meeting Date: September 21, 2023

SUBJECT: Masonic Lodge MOU with Harbor History Museum

SUBMITTED BY: Parks Manager Jennifer Haro

DEPARTMENT: Public Works

PHONE: 253-853-8253

SUGGESTED MOTION: None

BACKGROUND INFORMATION: At the July 13 city council study session, council directed staff to put the Crescent Creek Master Plan on hold for one year to allow a group of interested local residents to develop a plan for the restoration, use and management of the Masonic Lodge.

Since then, staff has met twice with leaders of this group, an ad-hoc group of citizens associated with the Harbor History Museum, to discuss expectations and create a memorandum of understanding. The MOU is intended to have the Museum group prepare public surveys regarding the use of the building, basic plans, cost estimates, funding sources and a management plan for the property. The city would supply minimal staff support regarding code requirements, meeting publicity, and distribution of online public surveys.

The city attorney advised against executing an agreement with an ad-hoc committee, so the draft MOU is with the Harbor History Museum and the work being performed by a committee and the museum's executive director. The museum director has indicated that she had proposed the work to the board, and will bring it to them for a formal vote on September 26, 2023.

At the September 21 study session, staff will summarize the draft MOU and ask for any suggested edits. It will then be placed on the regular city council meeting agenda for October 9.

FISCAL CONSIDERATION: None at this time

ATTACHMENTS:

1. MOU_Masonic Lodge-Harbor History Museum_JDL
2. DRAFT MOU Exhibit A

STRATEGIC PLAN PRIORITY: Ensure sustainable future for public services and facilities

**MEMORANDUM OF UNDERSTANDING
BETWEEN
THE CITY OF GIG HARBOR AND HARBOR HISTORY MUSEUM FOR
MASONIC LODGE CONCEPT PLANNING**

This Memorandum of Understanding (“MOU”) is made by and between the Gig Harbor History Museum (“Museum”), with interest in the future of the Masonic Lodge at Crescent Creek Park, and the City of Gig Harbor, a Washington municipal corporation (the “City”), collectively referred to as the “Parties.”

RECITALS

WHEREAS, the City is the owner of the former Masonic Lodge, on Pierce County parcel number 0222323032, located at 3025 96th Street NW, Gig Harbor, Washington, as shown in Exhibit A; and

WHEREAS, the building was originally constructed in 1915 as the Crescent Valley School; and

WHEREAS, the local Masons purchased the building from the school district in 1947 and significantly remodeled the building, turning it into a Masonic Lodge; and

WHEREAS, the City of Gig Harbor purchased the building in 2017, which is surrounded on three sides by Crescent Creek Park; and

WHEREAS, the Masonic Lodge property is currently located in unincorporated Pierce County and is surrounded on three sides by properties located in the city limits; and

WHEREAS, the City has a consultant contract for a Crescent Creek Park Master Plan, and a key component of the plan was the future of the Masonic Lodge; and

WHEREAS, at a City Council study session on May 11, 2023, City Council directed staff to prepare a resolution for the demolition of the Masonic Lodge; and

WHEREAS, members of the greater Gig Harbor community wrote letters to City Council and testified at City Council meeting where resolution 1278 was considered and asked Council not to demolish the Masonic Lodge building; and

WHEREAS, at a City Council Study Session on July 13, City Council directed staff to put the Crescent Creek Master Planning process on hold for one year so that that the group could develop a plan for the restoration and proposed use of the Masonic Lodge; and

WHEREAS, the MOU is intended to establish the responsibilities of the Parties in relation to the Museum proposal for the rehabilitation of the Masonic Lodge.

NOW, THEREFORE, the Parties set forth their understandings as follows:

1. PURPOSE OF MOU

- 1.1 The purpose of this MOU is to establish the responsibilities of the Parties in relation to the potential remodel, funding, programming and management for the Masonic Lodge.

2. MUSEUM RESPONSIBILITIES

- 2.1 In coordination with the City of Gig Harbor staff, prepare and distribute a public on-line survey about potential uses of the building.
- 2.2 Inform the City of Gig Harbor staff of any meetings on the subject, so that the City can advertise and invite the public to participate, where identified as a public meeting.
- 2.3 Provide drawings for proposed floorplan changes, additions, repairs, ADA access, etc. to the building for future use as an events center.
- 2.4 Provide a general site plan for required parking improvements, stormwater treatment locations, etc.
- 2.5 Prepare cost estimates for proposed changes.
- 2.6 Provide information on potential funding sources for remodel/construction costs, including potential donations or grants that the project would qualify for.
- 2.7 Provide estimated costs for fixtures, furnishings and equipment that would be necessary to the use of the building as an events center.
- 2.8 Provide a plan for management of the building as an events center, including staffing requirements, event management, and allowed uses.
- 2.9 In coordination with the City of Gig Harbor, send out a second public survey asking area residents if they support the proposal considering the estimated costs.

3. CITY RESPONSIBILITIES

- 3.1 Send a representative to any meetings that the Museum hosts on the subject as appropriate.
- 3.2 A representative from the City will consult with relevant City departments about regulatory issues that may arise in the planning process such as parking requirements, landscaping and frontage improvements , fire safety improvements, etc.
- 3.3 The City will assist in publicizing public meetings of the committee.
- 3.4 The City will assist in distributing any public surveys that are developed in this process.
- 3.5 The City will review and provide input on drawings, the site plan, and cost estimates.
- 3.6 The City's responsibilities listed above will be provided at no cost to the Museum.

4. PERIOD OF MOU

- 4.1 This MOU shall remain in effect through July 13, 2024 and will not be renewed, unless noticed per Section 6 below.

6. TERMINATION OR MODIFICATION OF MOU

Either Party may terminate or modify this MOU, in whole or in part, for any reason provided, however, that insofar as practicable, the party terminating or modifying the MOU will give not less than ninety (90) calendar days prior notice to the other party. Such termination or modification does not alter any of the rights and obligations of the parties as outlined in the Lease and associated amendments and shall be by written notice delivered by certified mail, return receipt requested.

7. ALL TERMS AND CONDITIONS

This MOU contains all the terms and conditions agreed upon by the Parties. No other understandings, oral or otherwise, regarding the subject matter of this MOU shall be deemed to exist or to bind any of the Parties hereto.

8. CONTACT PERSONS

The Parties shall designate a contact person for purposes of sending inquiries and notices regarding the execution and fulfillment of this MOU.

	City of Gig Harbor
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Contact Name	Jennifer Haro
Organization	City of Gig Harbor
Title	Parks Manager
Address	3510 Grandview Street Gig Harbor, WA 98355
Telephone	(253) 853-8253
E-Mail	jharo@gigharborwa.gov

	Harbor History Museum
Contact Name	Stephanie Lile
Title	Harbor History Museum Executive Director
Address	PO Box 744 Gig Harbor, WA 98335-0744
Telephone	253-858-6722 ext. 7
E-Mail	director@harborhistorymuseum.org

Each Party warrants and represents that its execution of this MOU has been authorized by its governing body.

9. Effective Date.

This MOU shall take effect when it is signed by all the Parties hereto.

IN WITNESS WHEREOF the Parties hereto have executed this MOU on the _____ day of _____, 2023.

CITY OF GIG HARBOR

HARBOR HISTORY MUSEUM

By: _____
Mayor Tracie Markley
Date: _____

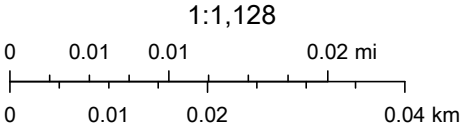
By: _____
Its: _____
Date: _____

Exhibit A



9/12/2023, 1:35:16 PM

 Parcel Boundary



Maxar, Microsoft, Esri Community Maps Contributors, WA State Parks GIS, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA