City of Gig Harbor

Urban Forestry Management Plan

GIG HARBOR
"THE MARITIME CITY"

DAVEY Resource Group

Prepared for:
City of Gig Harbor
3510 Grandview St,
Gig Harbor, WA, 98335

Prepared by:
Davey Resource Group, Inc.
295 S Water Street
Kent, OH, 44240

Acknowledgments

Mayor & City Council

Tracie Markley, Mayor
Jeni Woock
Roger Henderson
Brenda Lykins
Mary Barber
Julie Martin
Le Rodenberg
Seth Storset

Advisory Boards & Commissions

Ben Coronado, Parks Commission Chair
Darrin Filand, Design Review Board Chair
Jon Ashlock, Design Review Board member

Puyallup Tribe

Jennifer Keating, Land Use Planner & Asst. Tribal Historic Preservation Officer
Angela Dillon, SEPA Reviewer
Jeffery Thomas, Timber, Fish and Wildlife Specialist

City Staff

Katrina Knutson, City Administrator
Jeff Langhelm, Public Works Director
Kyle Neiman, Field Supervisor
Dave Fischbach, Arborist
Carl de Simas, Community Development Director
Robin Bolster-Grant, Principal Planner
Roxanne Robles, PM/Senior Planner
Adam Blodgett, Code Compliance Officer
Cindy Andrews, Planning Technician
Michelle Thomas, Planning Technician

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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 *Arboriculture & Urban Forestry*. 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 exiting 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.

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 (PM_{10}) 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 (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and more volatile organic compounds (VOCs).

Direct carbon sequestration: Through growth and the sequestration of CO_2 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 benefits[1] 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 carbon[3]	**56,211**	**tons**	**$9,586,990**
Total			**$10,284,891**

[1]Tree owners can calculate the benefits of trees by using i-Tree 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 (NO_2), ozone (O_3), sulfur dioxide (SO_2), 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
Pseudotsuga menziesii	Douglas fir	778	30.67%
Acer rubrum	Red maple	470	18.53%
Carpinus betulus	European hornbeam	145	5.72%
Quercus palustris	Pin oak	109	4.30%
Pyrus calleryana	Flowering pear	98	3.86%
Fraxinus pennsylvanica	Green ash	88	3.47%
Liriodendron tulipifera	Tulip tree	88	3.47%
Cercidiphyllum japonicum	Katsura tree	86	3.39%
Quercus rubra	Red oak	80	3.15%
Tsuga heterophylla	Western Hemlock	80	3.15%
Acer platanoides L.	Norway maple	72	2.84%
Stewartia pseudocamellia	Japanese stewartia	62	2.44%
Arbutus menziesii	Pacific Madrone	51	2.01%
Liquidambar styraciflua	American sweetgum	36	1.42%
Thuja plicata	Western red cedar	32	1.26%
Fraxinus americana	White ash	31	1.22%
Sorbus aucuparia	European mountain ash	30	1.18%
Cornus kousa	Japanese flowering dogwood	26	1.02%
Crataegus laevigata	English hawthorn	23	0.91%
Acer palmatum	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.

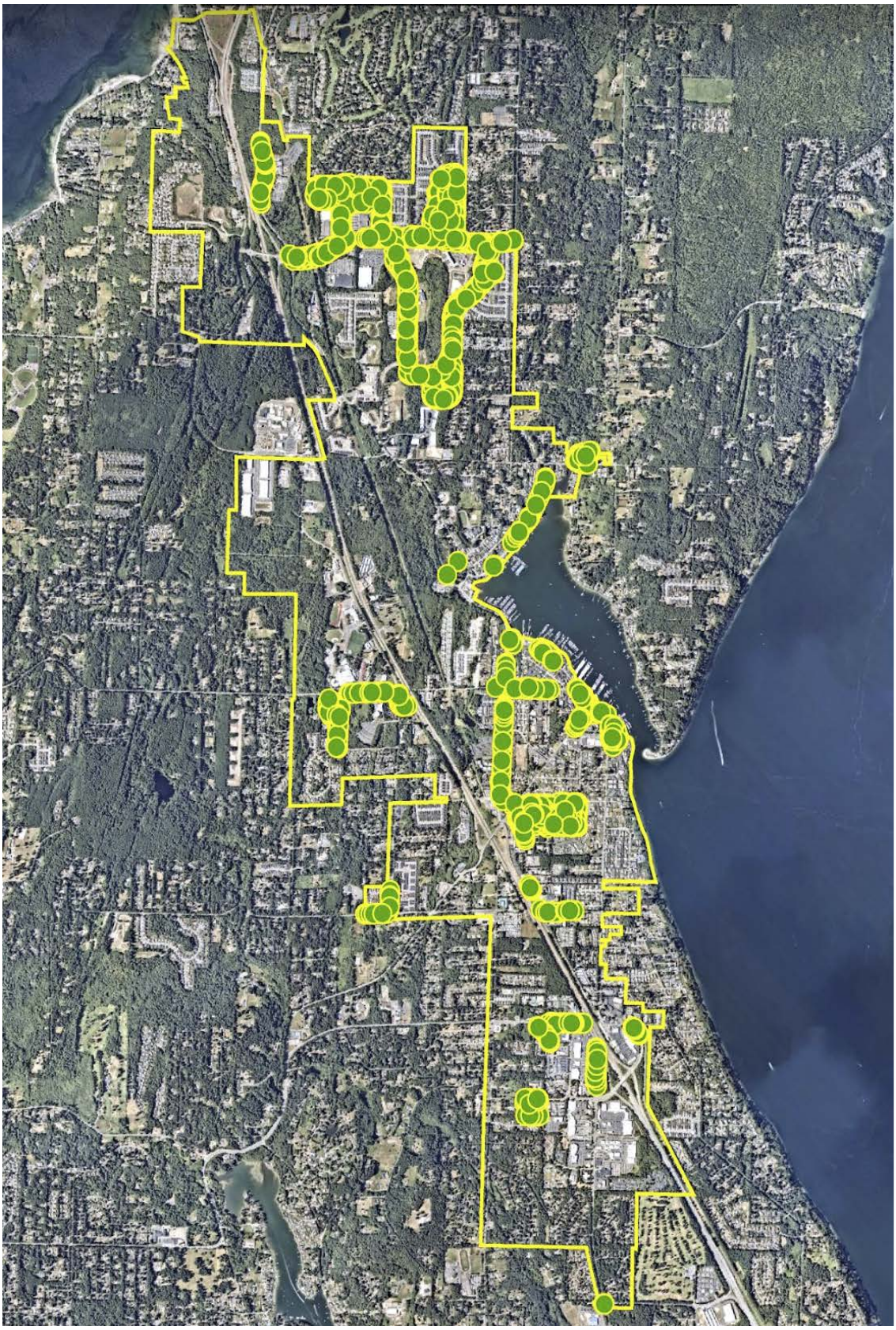

Image 1. Gig Harbor's 2016 inventory of street trees.

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.

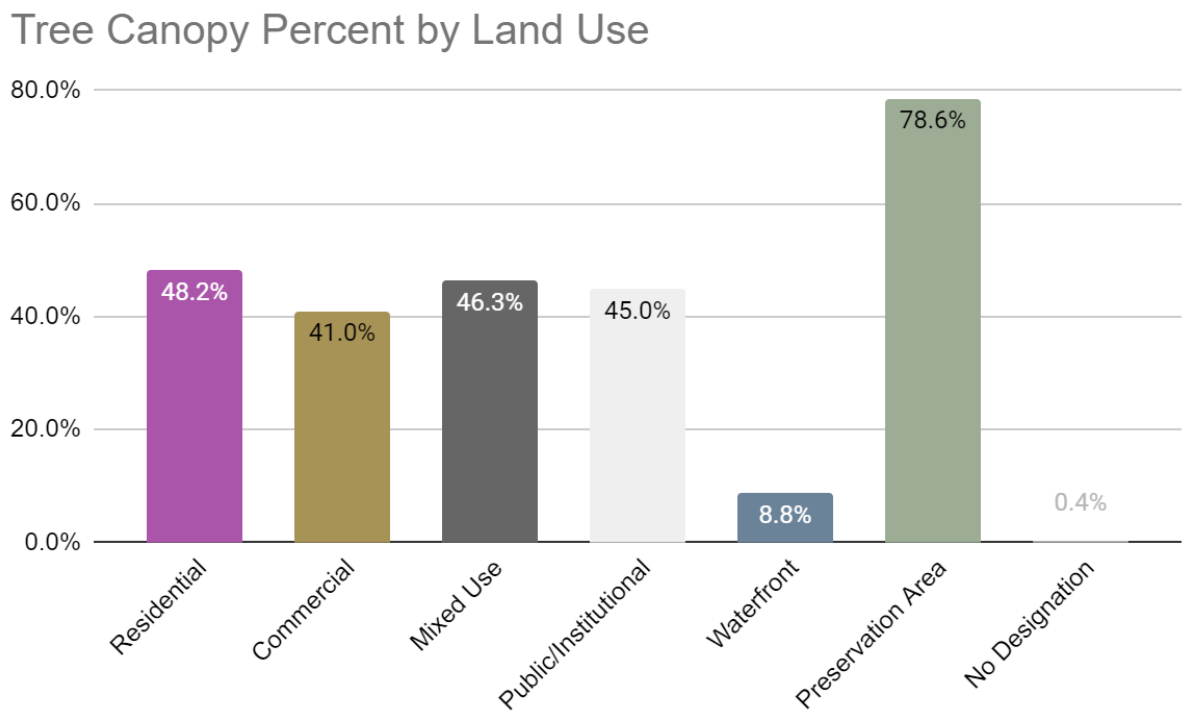

Figure 1. Tree canopy percent by land use

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.

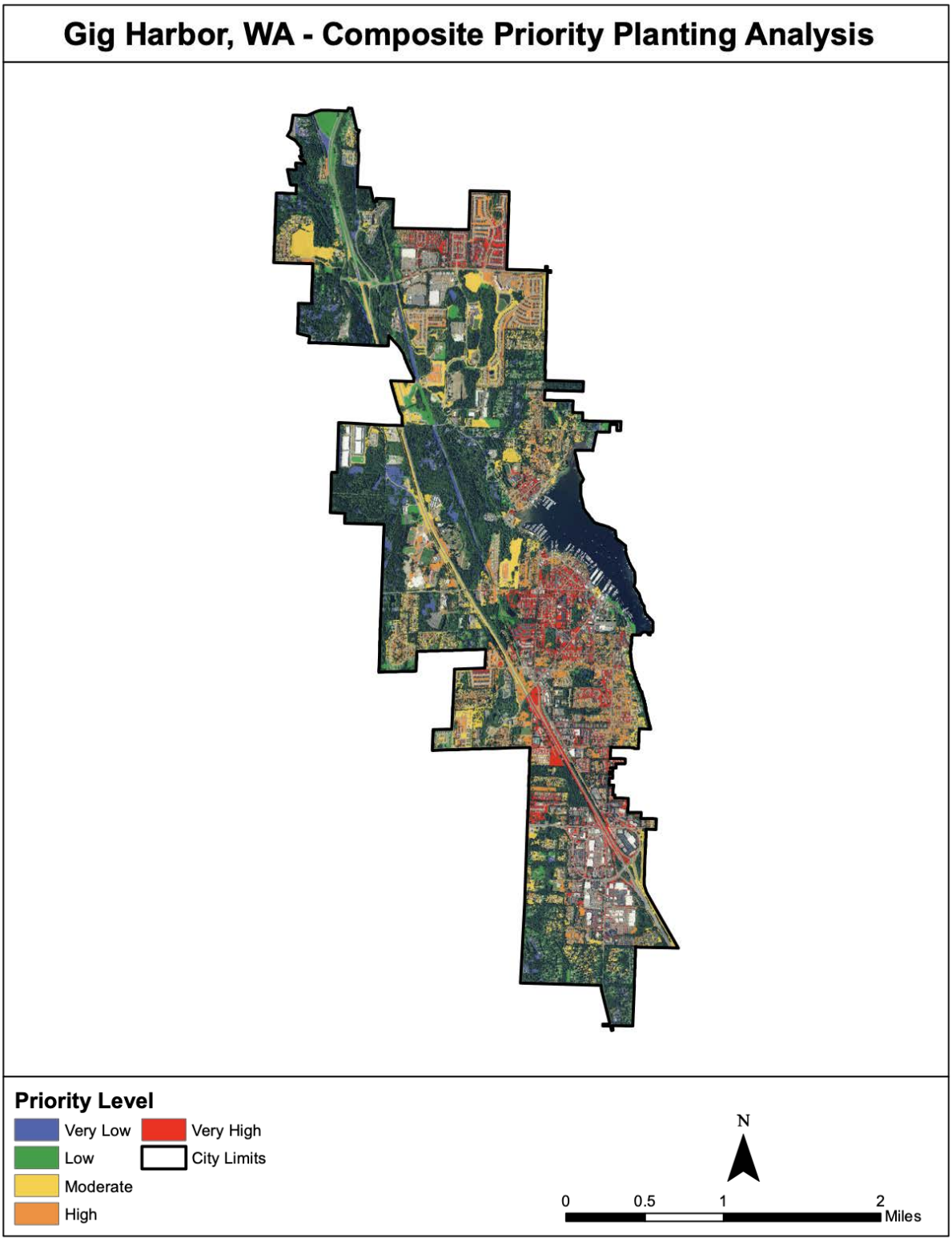

Image 2. Composite priority planting areas for stormwater management, urban heat island effect, and social equity.

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)

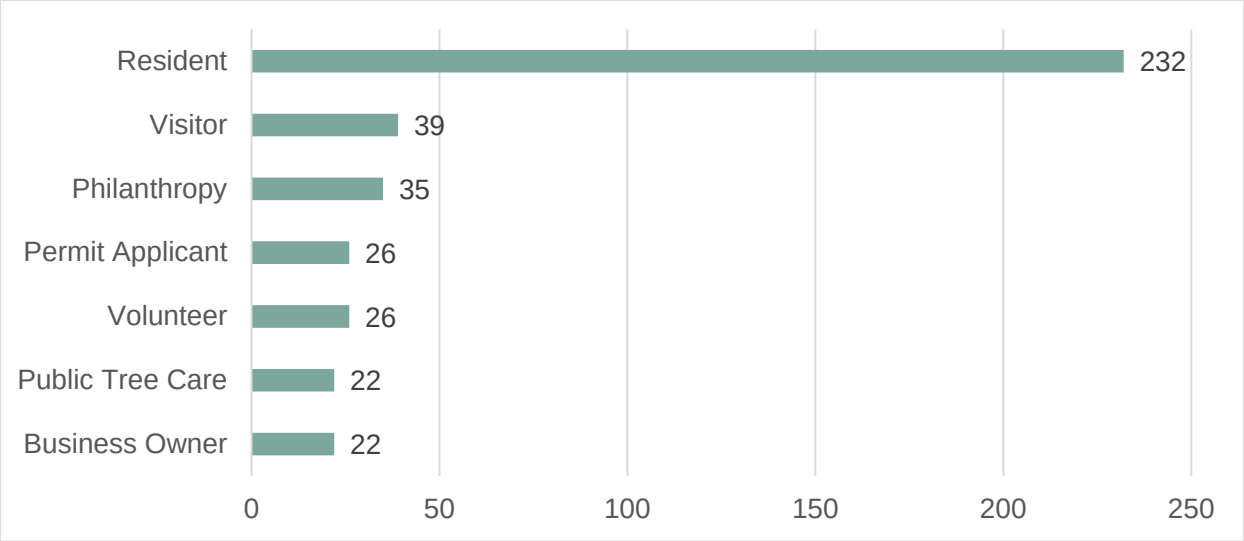

Figure 2. Survey response: "What is your relationship with trees in Gig Harbor? Select all that apply".

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).

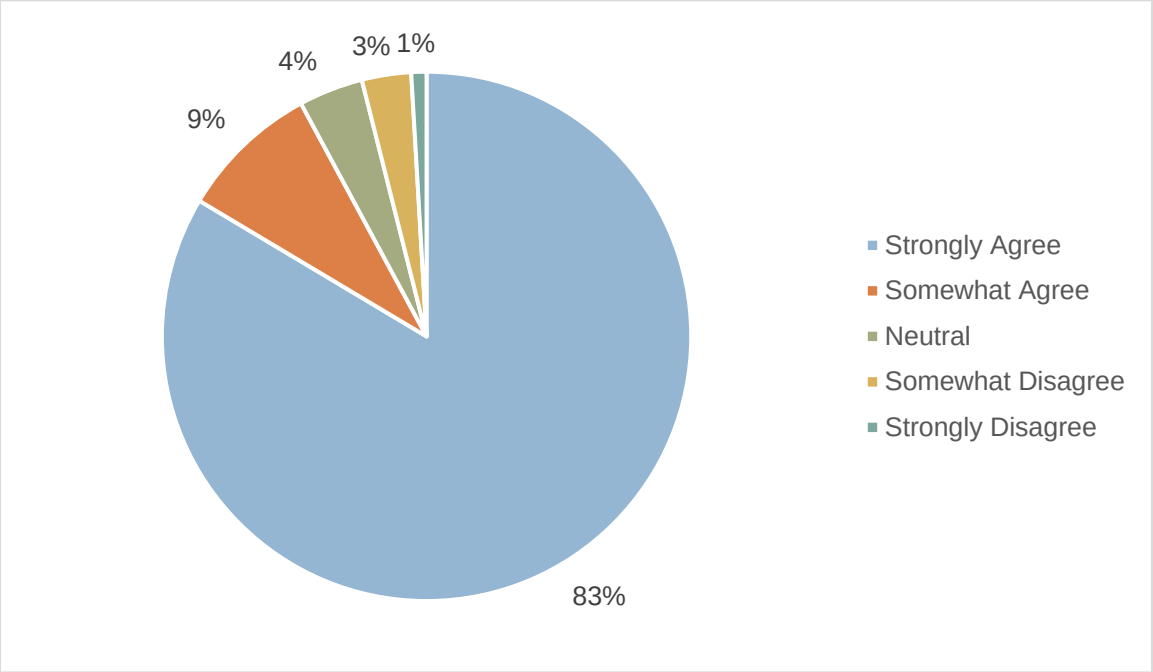

Figure 3. Survey response: "Trees are important to the quality of life in Gig Harbor".

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).

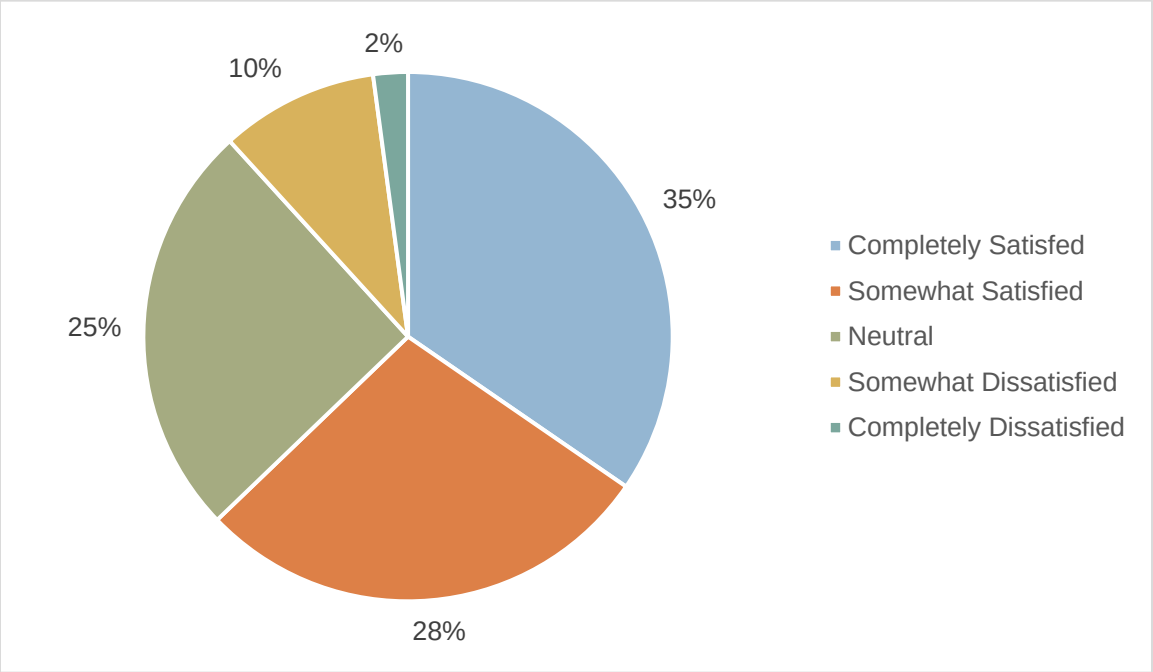

Figure 4. Survey response: "What is your satisfaction with the current level of maintenance for trees on public property?"

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.

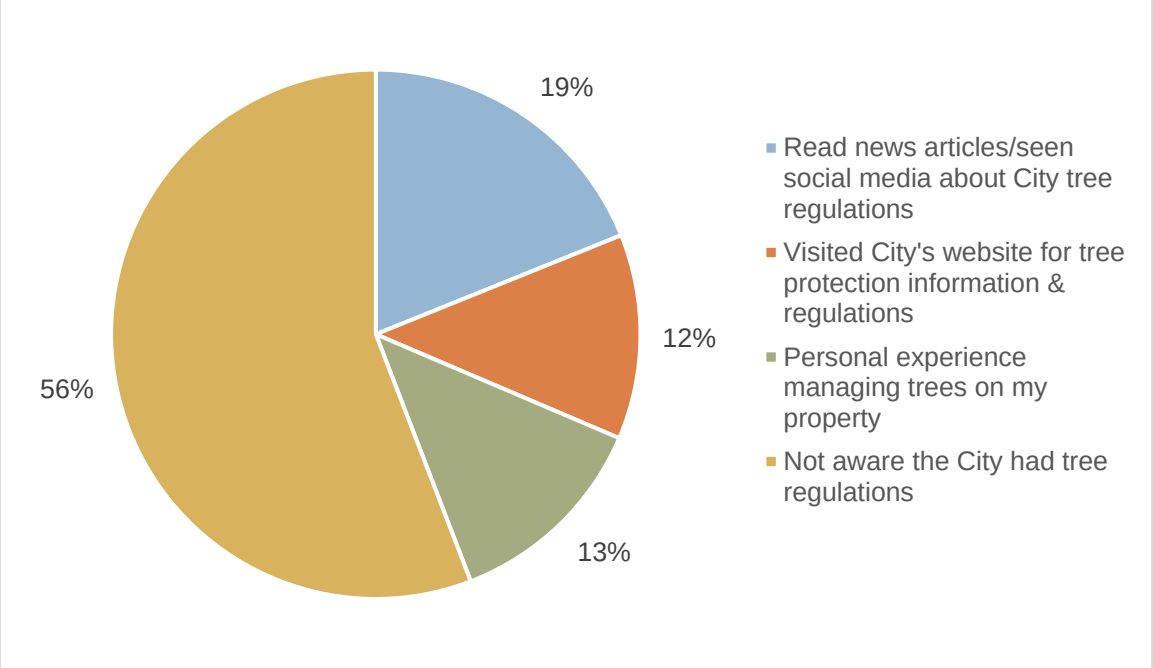

Figure 5. Survey response: "What do you know about the city's tree regulations for private property?"

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

			RPI
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.	
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

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.

- **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**
  - Does this action generate externalities, or unintended impacts, which affect communities of color, low-income communities, and those communities impacted by environmental hazards?
  - If so, how can we mitigate these impacts and ensure that implementation is equitable.
- **Access to participation and technical knowledge**
  - Does this action incorporate a range of access needs?
  - 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**

- Does this action prioritize those communities with compounded social and health issues, as identified in the priority planting analysis?
- 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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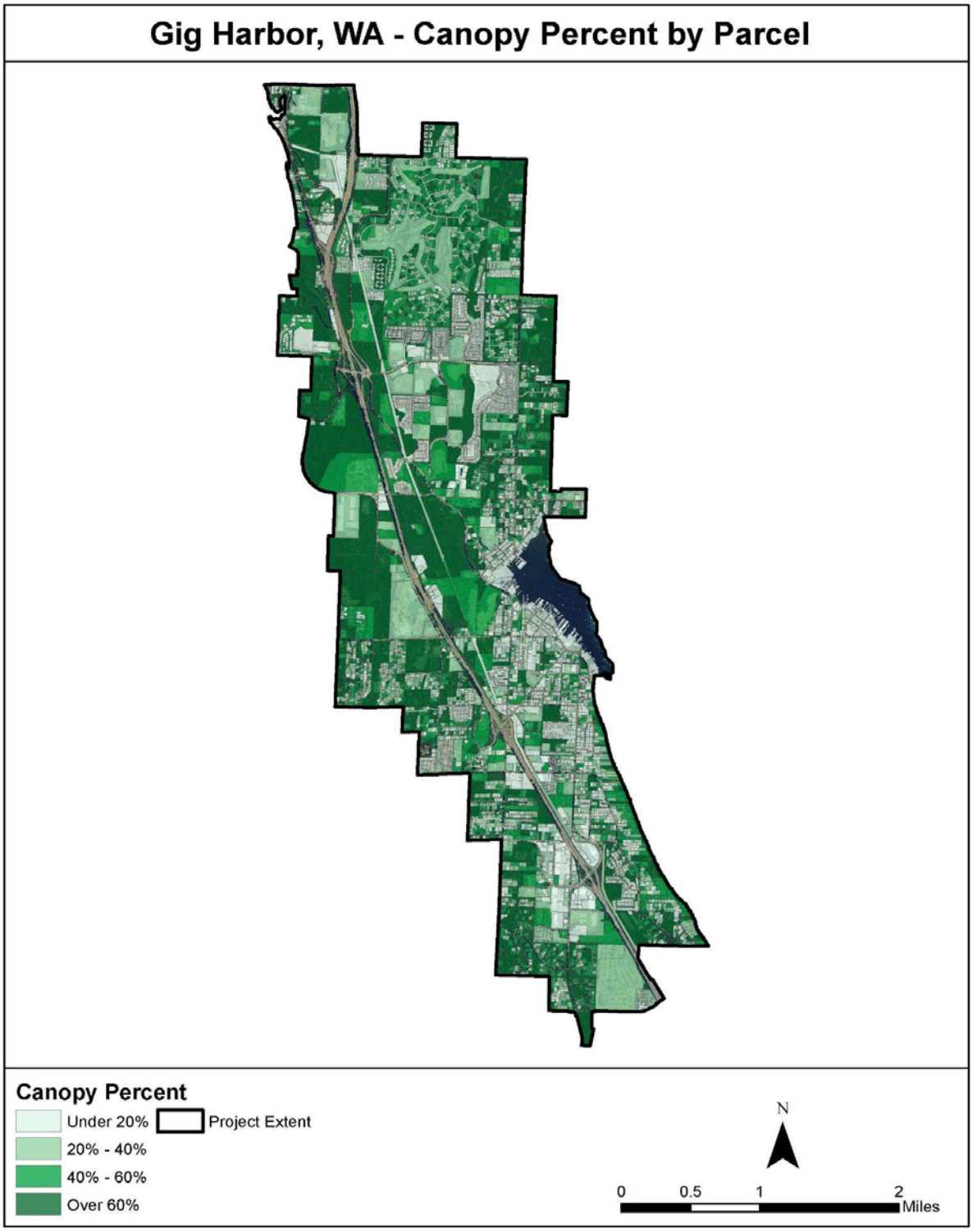
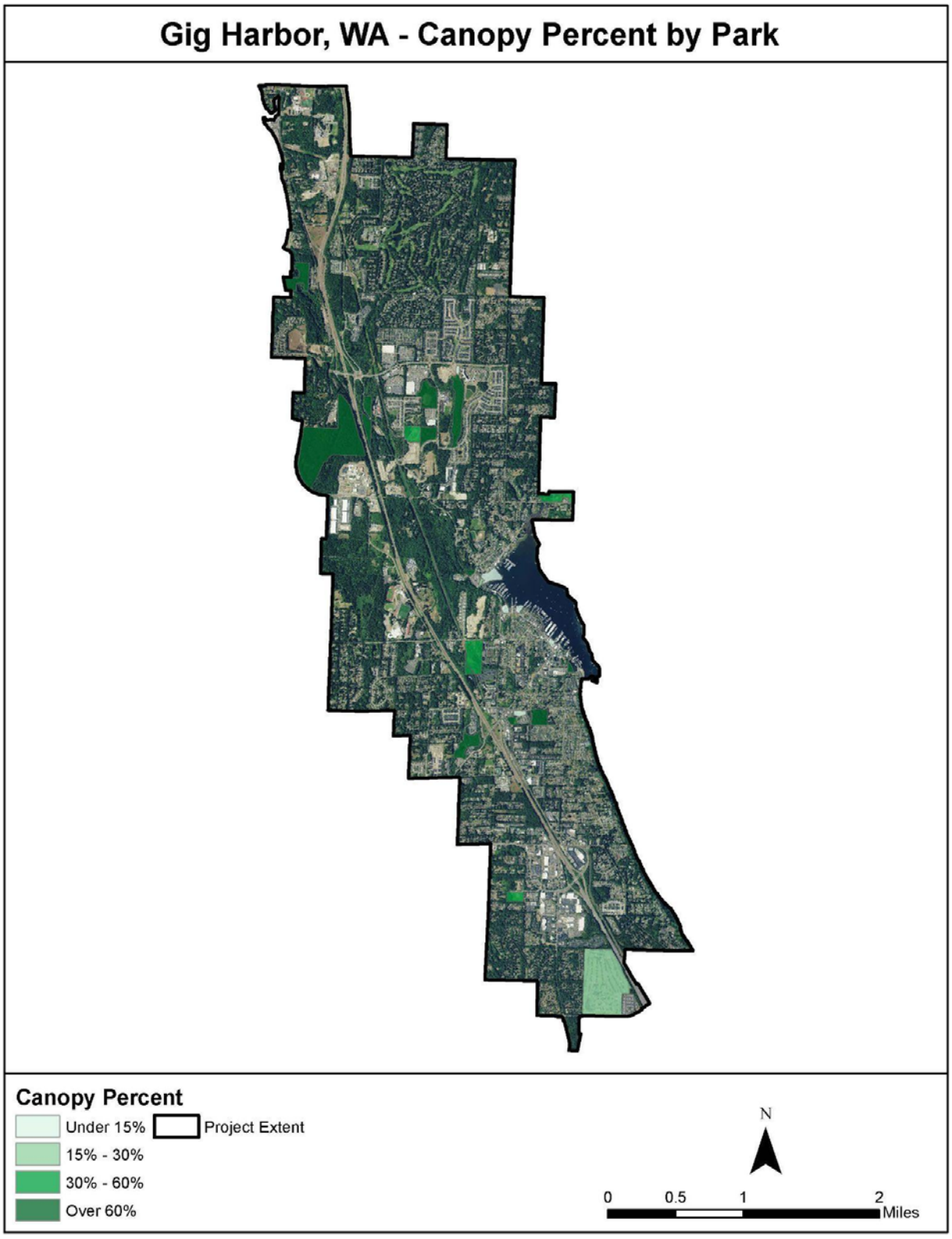
Appendix B: Maps[5]



[5] https://canopy.treekeepersoftware.com/gigharborwa


Gig Harbor, WA - Canopy Percent by Park
Canopy Percent
Under 15%
Project Extent
15% - 30%
30% - 60%
Over 60%
N
0
0.5
1
2
Miles

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.

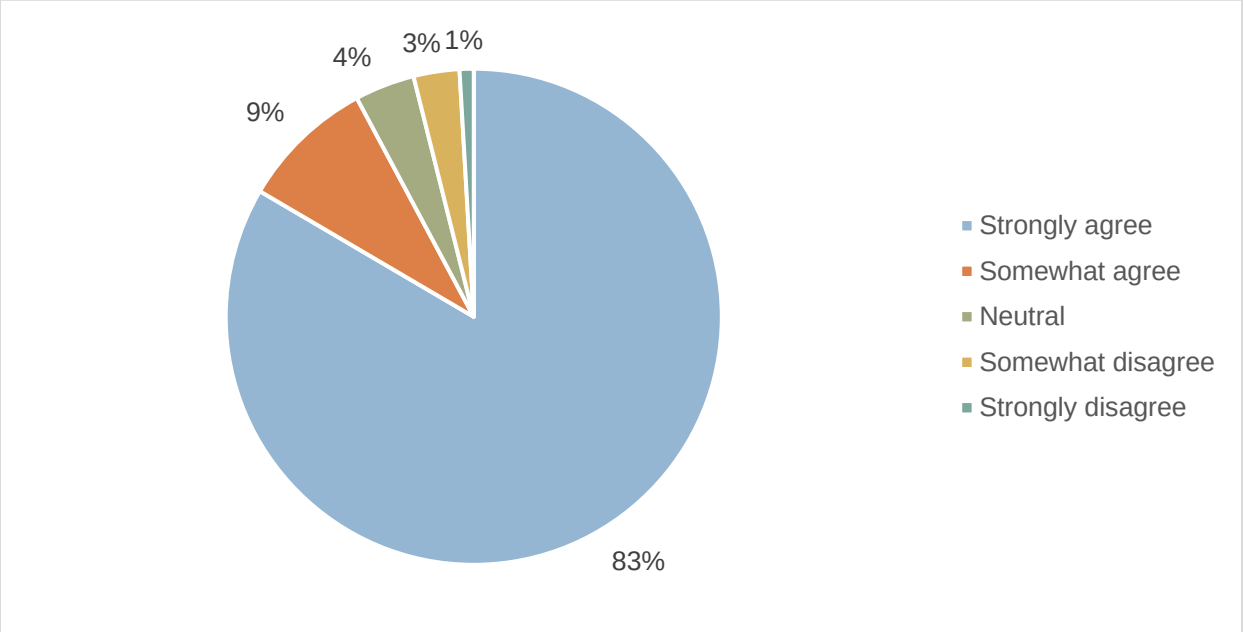
Indicators	Gig Harbor Today	Performance Levels			Overall Objective
		Low	Moderate	Good	
Risk Management Program	**Risk management is limited to signage in parks or reactive based on complaints.**	Request-based, reactive system. The condition of publicly owned trees is unknown.	There is some degree of 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.

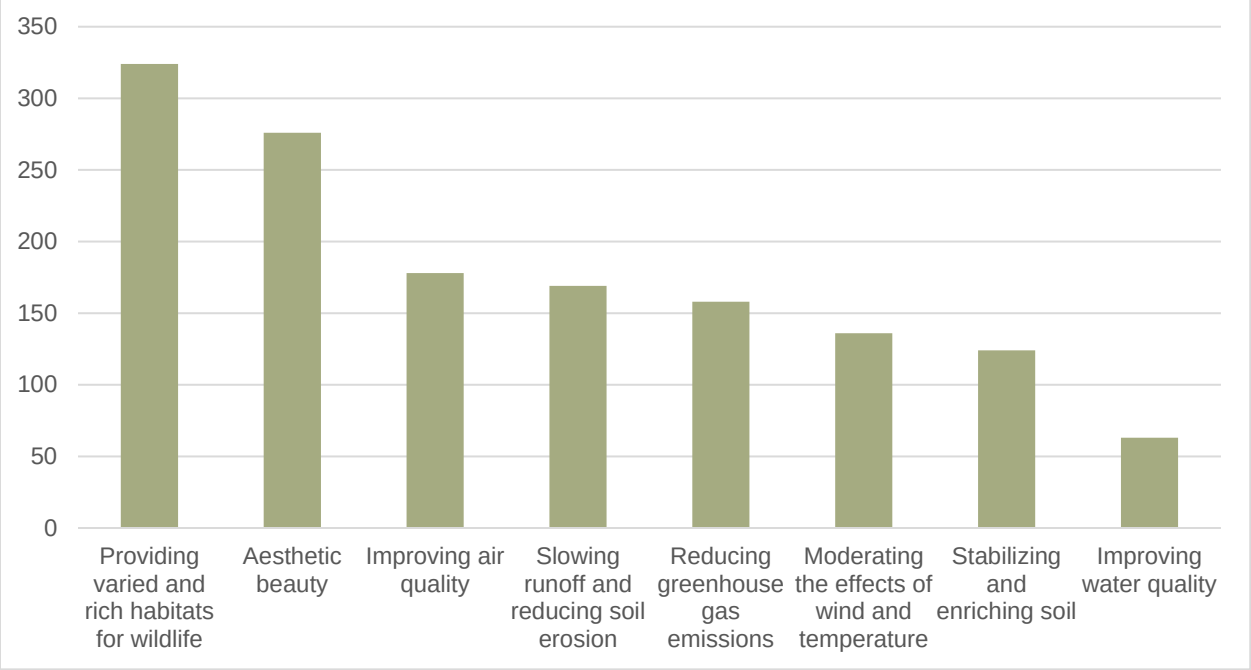
Indicators	Gig Harbor Today	Performance Levels			Overall Objective
		Low	Moderate	Good	
City Staffing and Equipment	**Staff are trained for tree work, one ISA certified arborist on Staff. ISA certified arborists are contracted to fill in gaps.**	Insufficient staffing levels insufficiently trained staff, 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

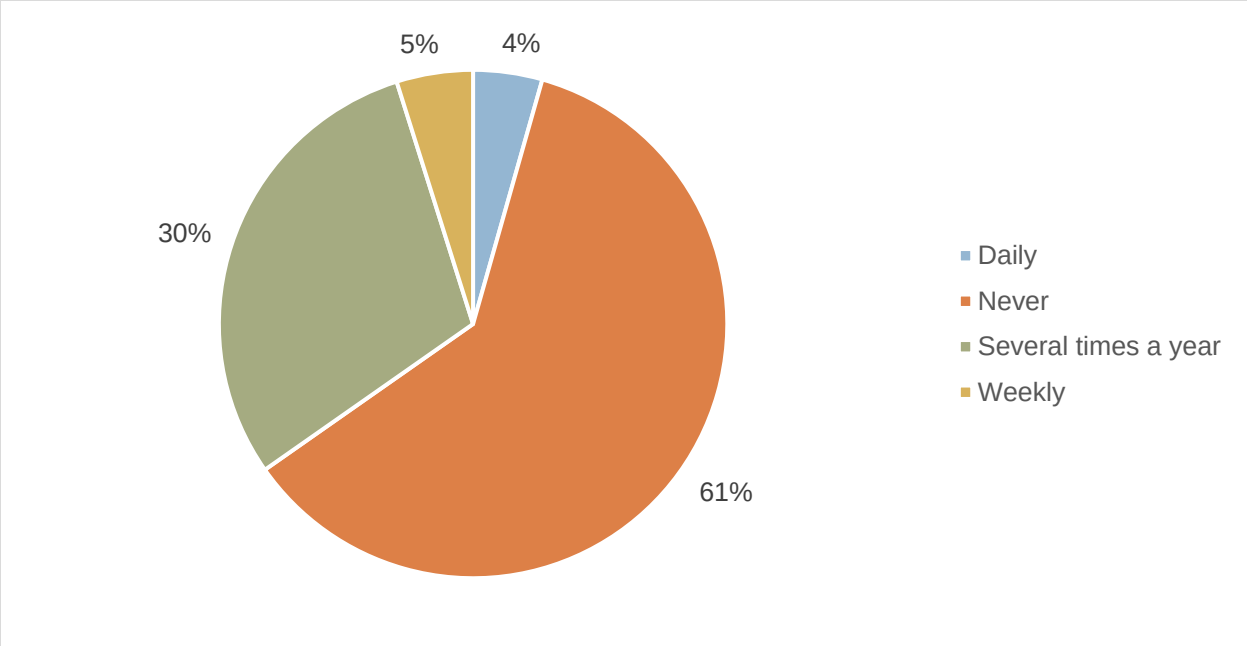
Survey data was collected online and advertised during the month of February and March 2023. The survey was advertised on the city's web page and through 4,941 postcards to addresses within the city limits and the urban growth area (UGA). The survey closed with 437 responses. The survey did not correct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



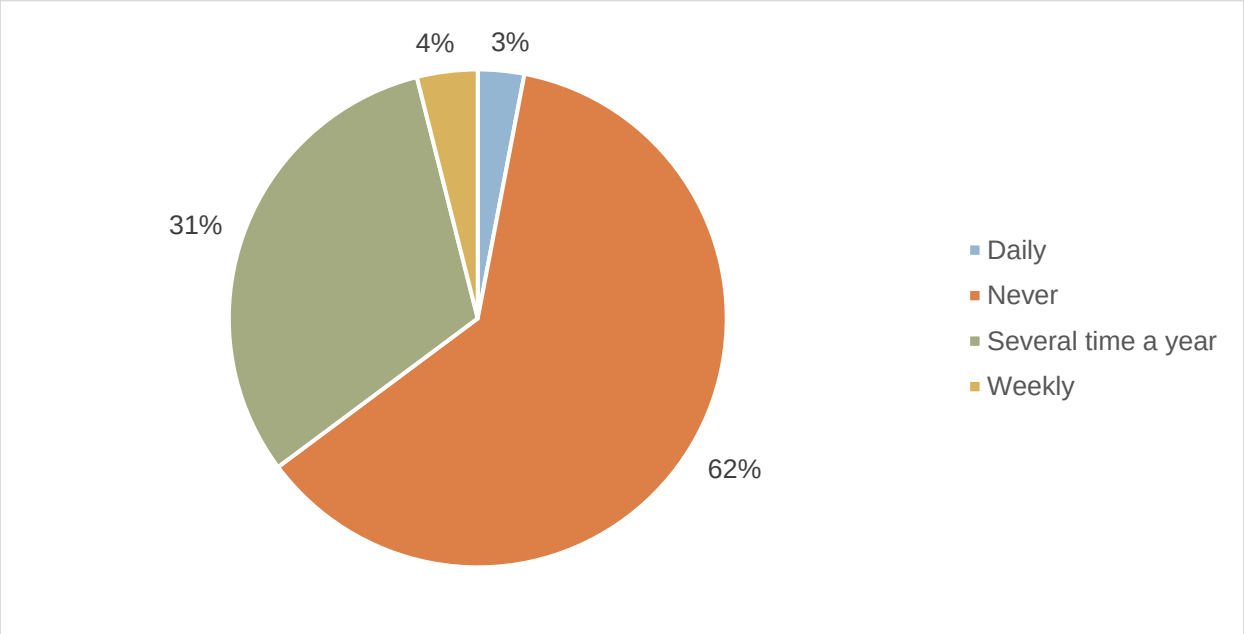
Question 1. Trees are important to the quality of life in Gig Harbor.



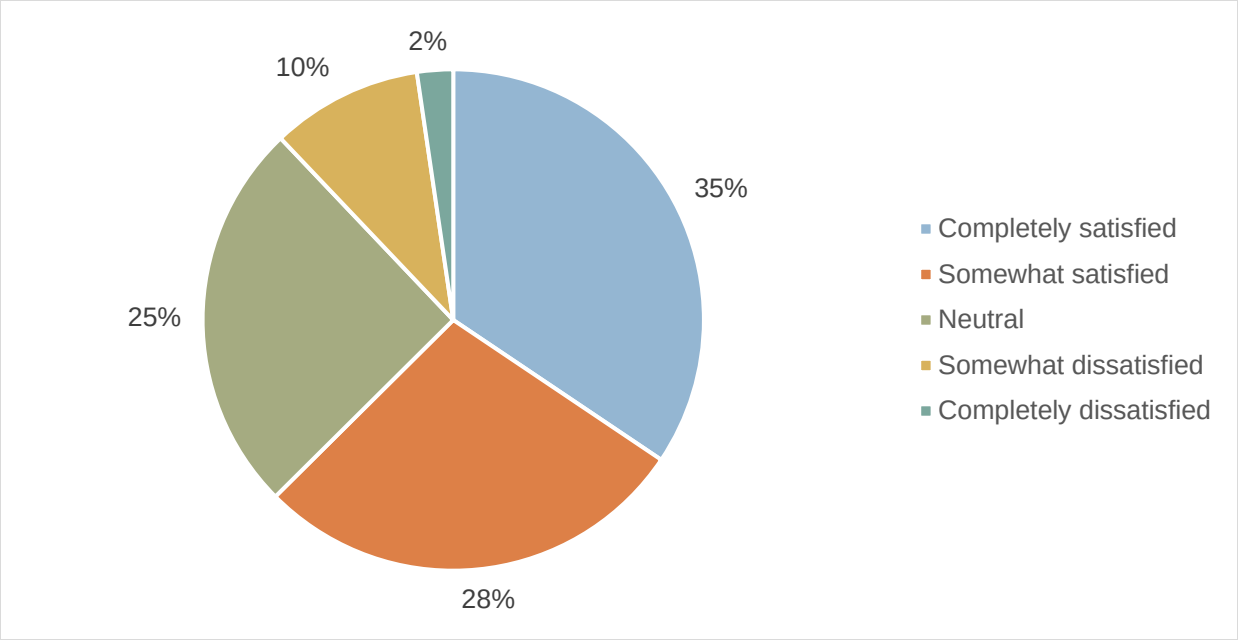
Question 2. Which tree-related benefits are most beneficial to you? Pick three.



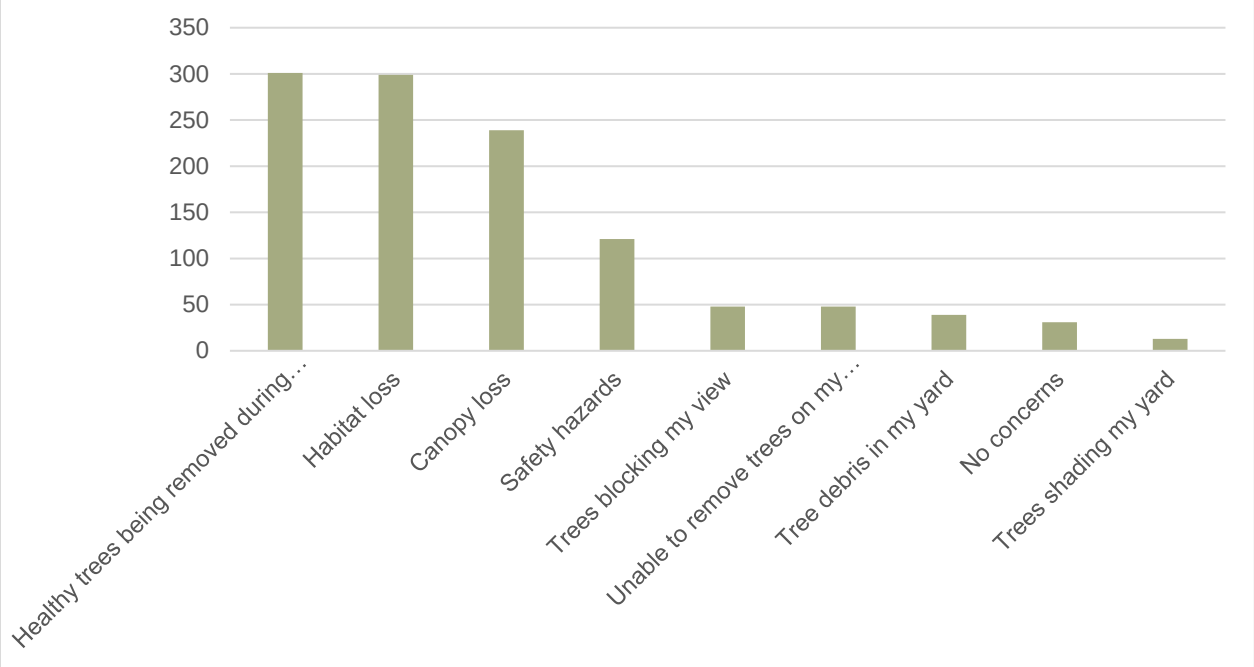
Question 3. Trees can grow to obstruct streets and sidewalks. How often do you encounter this issue with trees on public property?



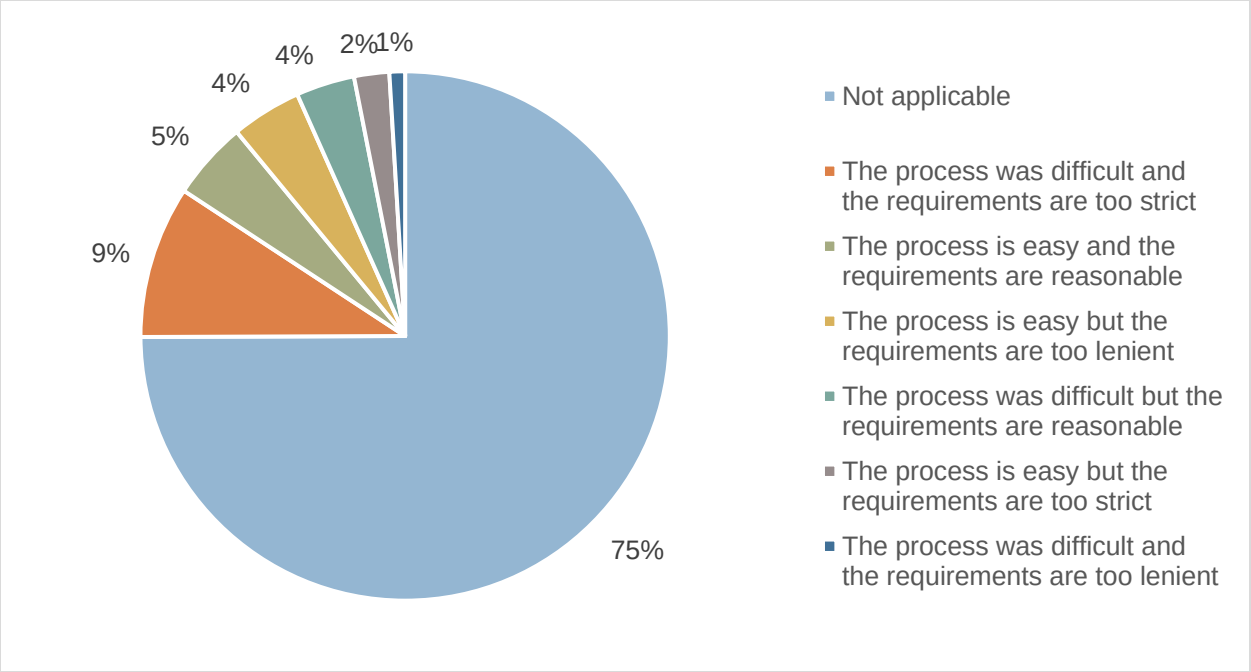
Question 4. Trees can become damaged or develop structural weakness over time, and these issues may be risks for injury to people and property. How often do you encounter this issue with trees on public property?



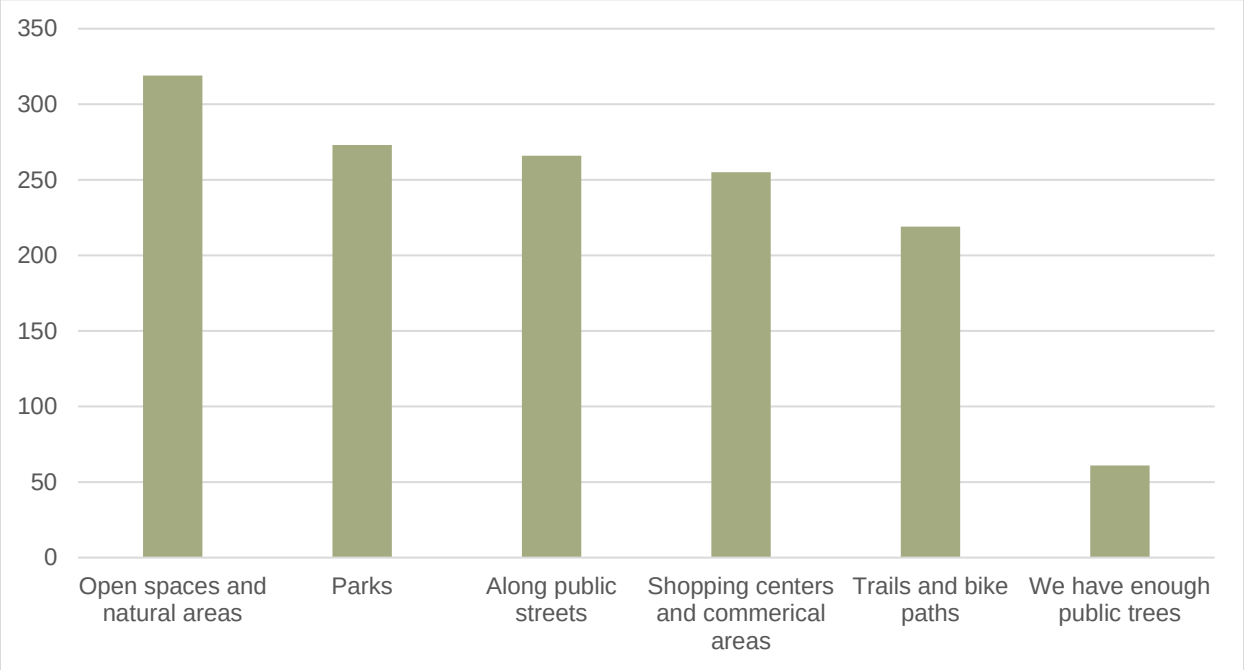
Question 5. What is your satisfaction with the current level of maintenance provided for trees on public property?



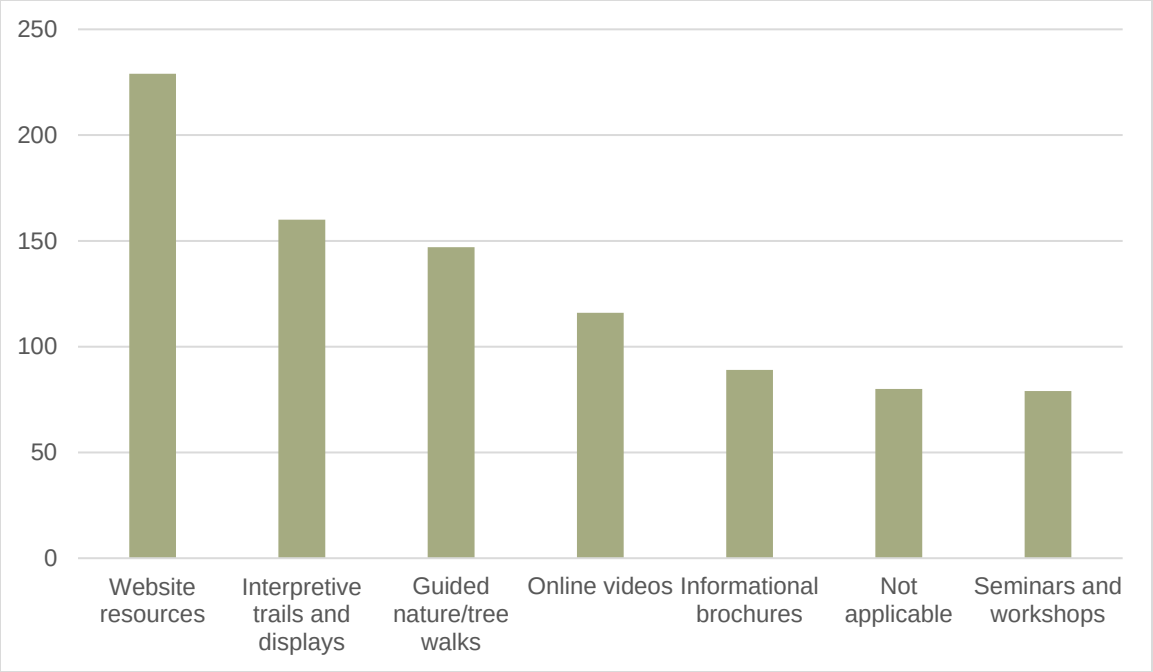
Question 6. What are your top concerns for Gig Harbor trees? Select all that apply.



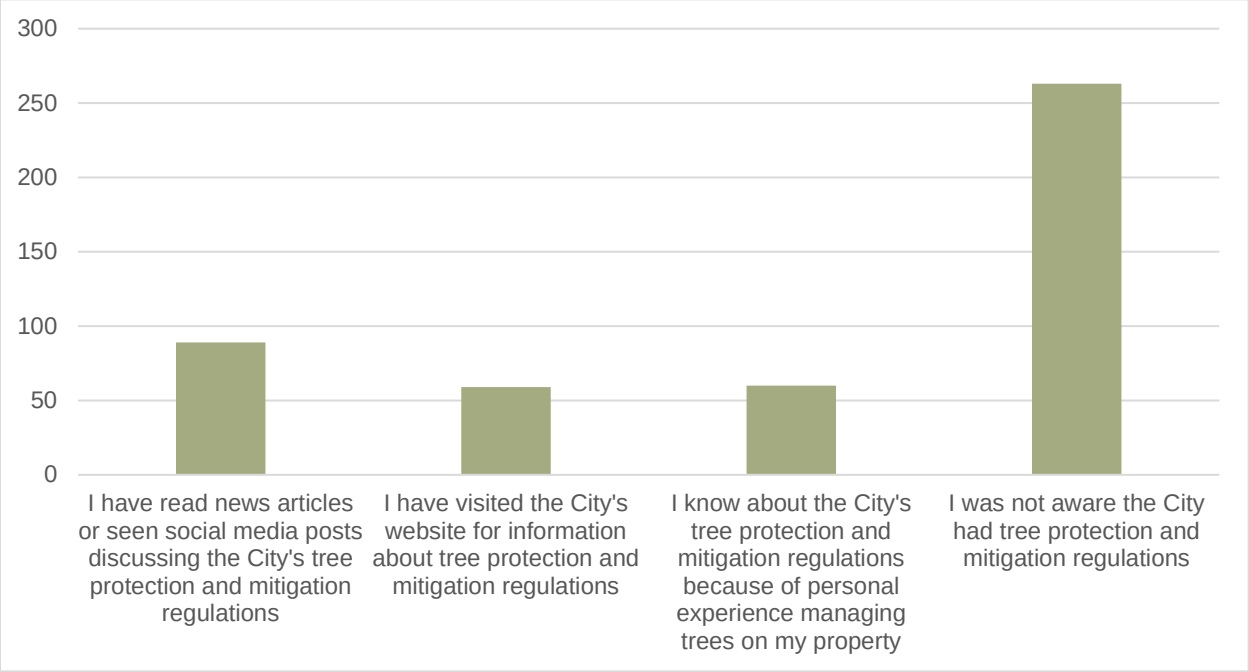
Question 7. What is your experience with the city's tree regulations for private property?



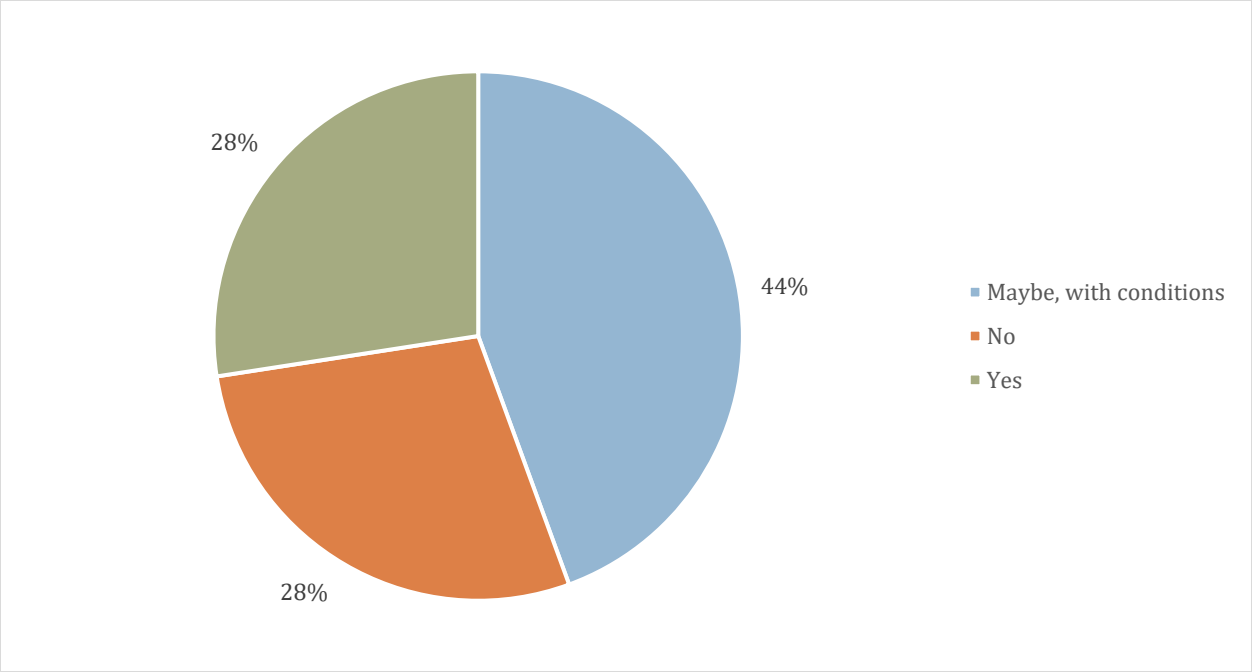
Question 8. Where would you like to see more trees planted? Select all that apply.



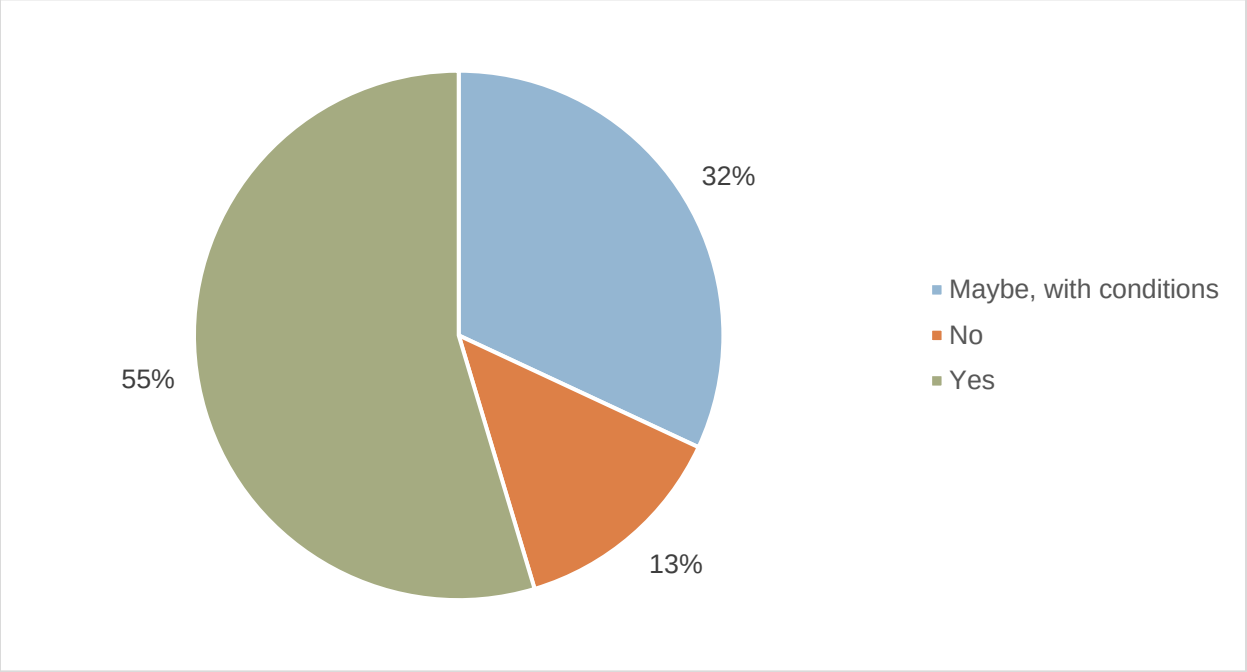
Question 9. How would you like to receive information about urban forestry? Select all that apply.



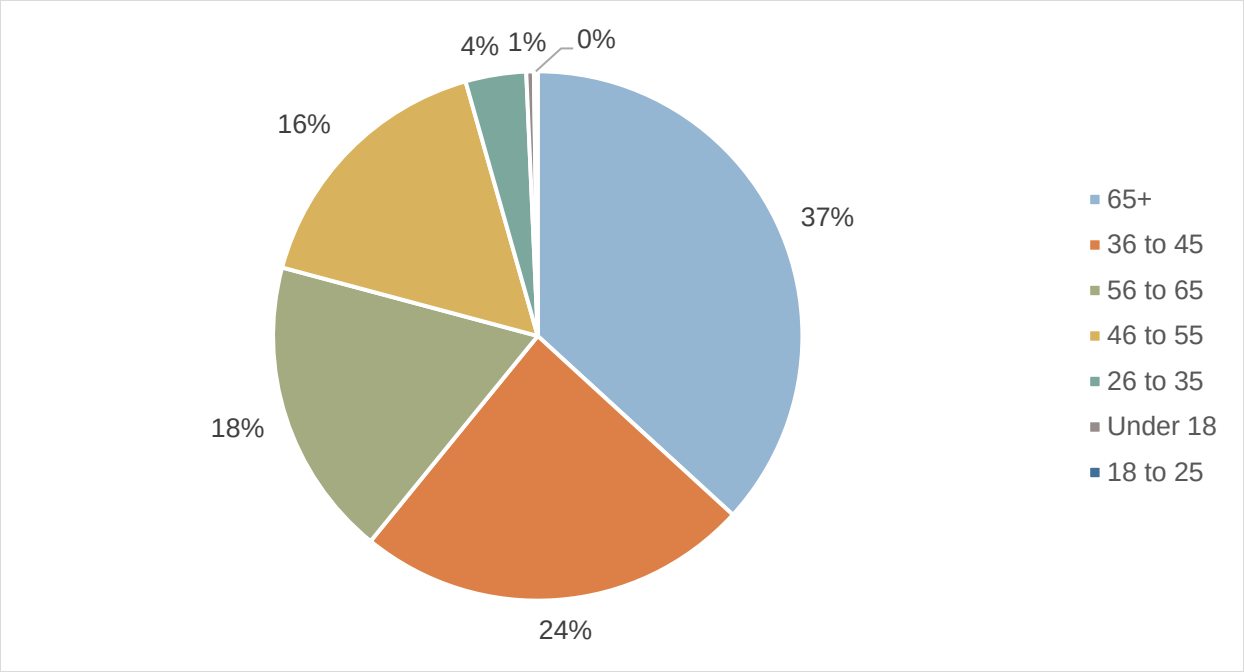
Question 10. What do you know about the city's tree regulations on private property? Select all that apply.



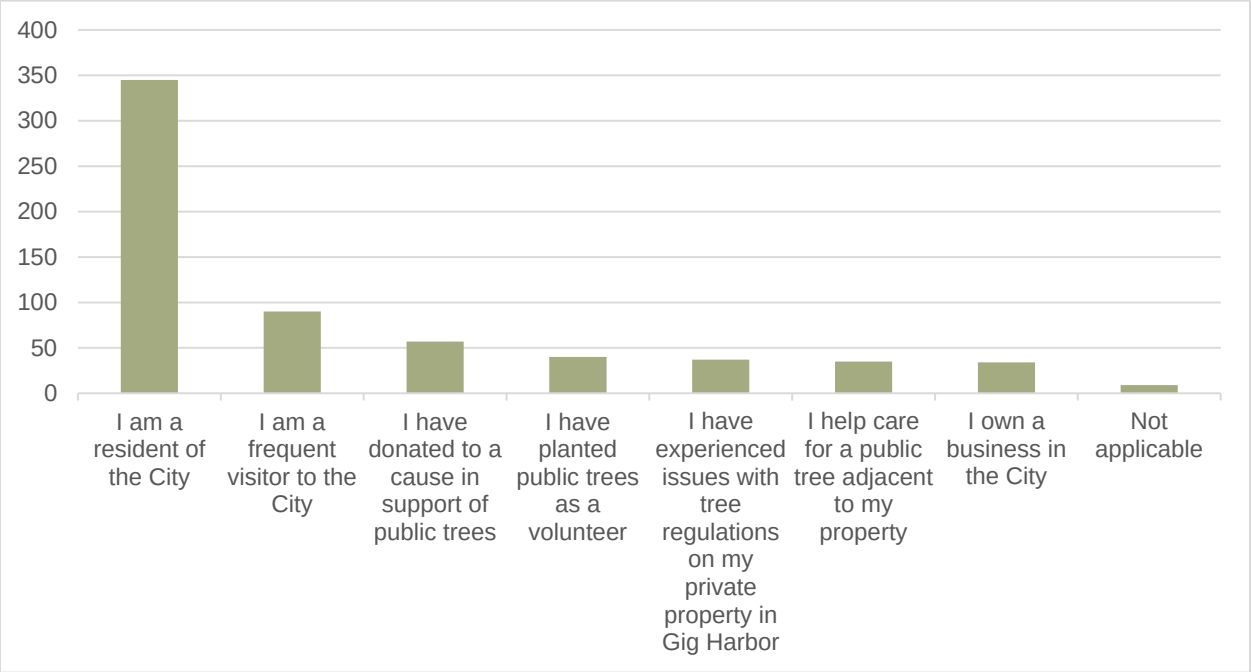
Question 11. What do you think about a Citywide special assessment (property tax) to fund urban forestry programs?



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

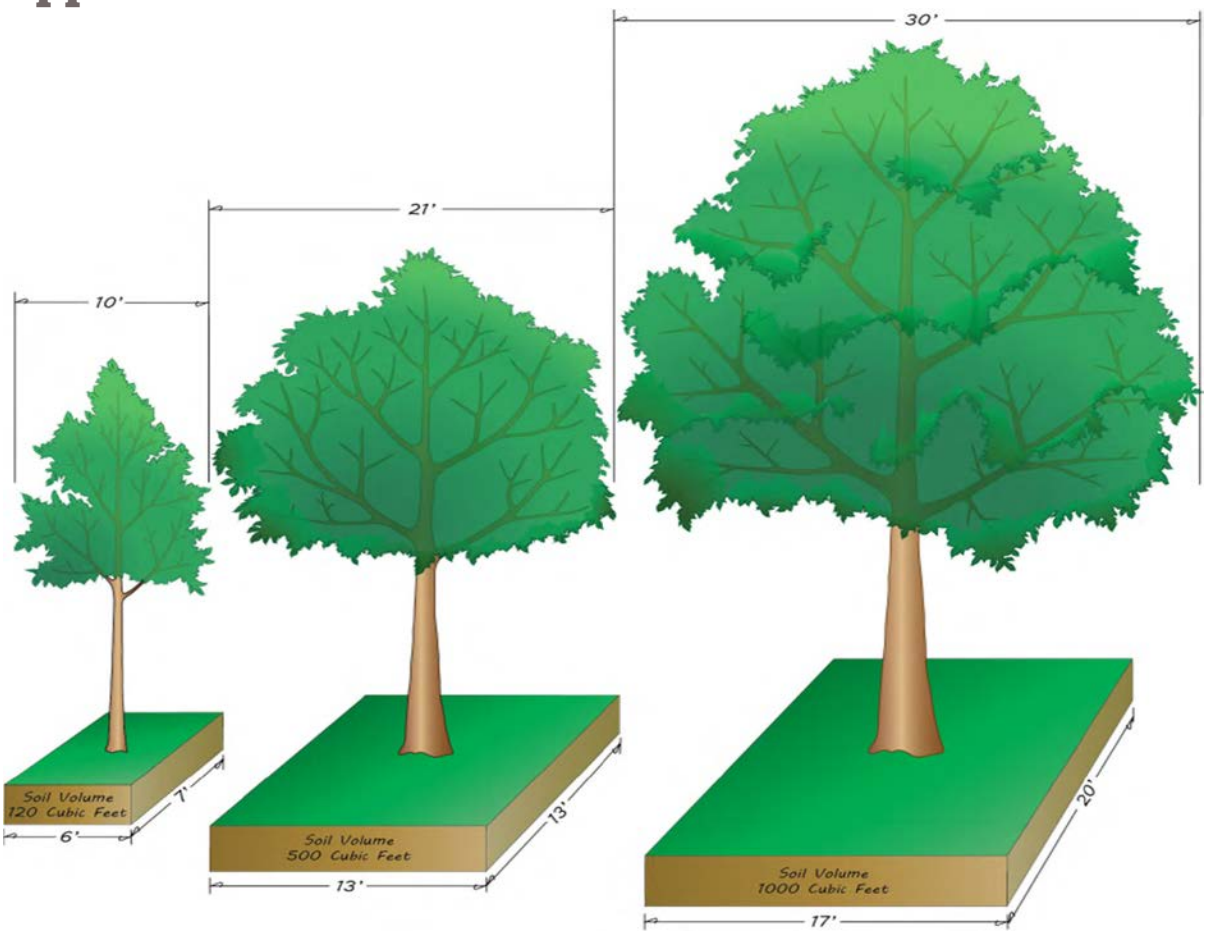


Image 3. Soil Volume and Tree Stature

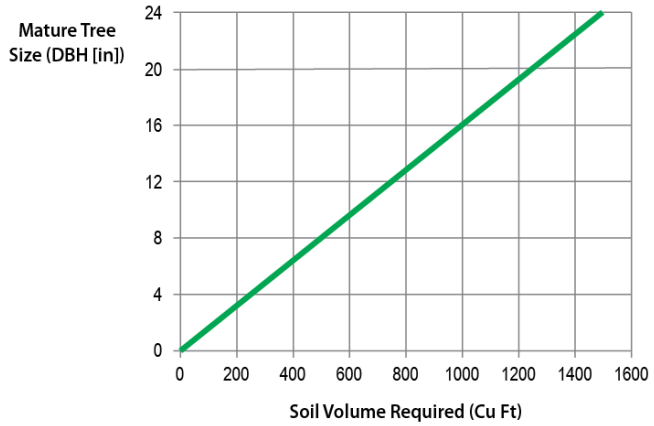


Image 4. Recommended Soil Volume by Mature Tree Size